The Iron Age

A Review of the Hardware and Metal Trades.

Published every Thursday Morning by DAVID WILLIAMS, No. 10 Warren Street, New York.

Vol. XVI: No. 9. *New York, Thursday, August 26, 1875.* *$4·50 a Year, Including Postage. Single Copies, Ten Cents.*

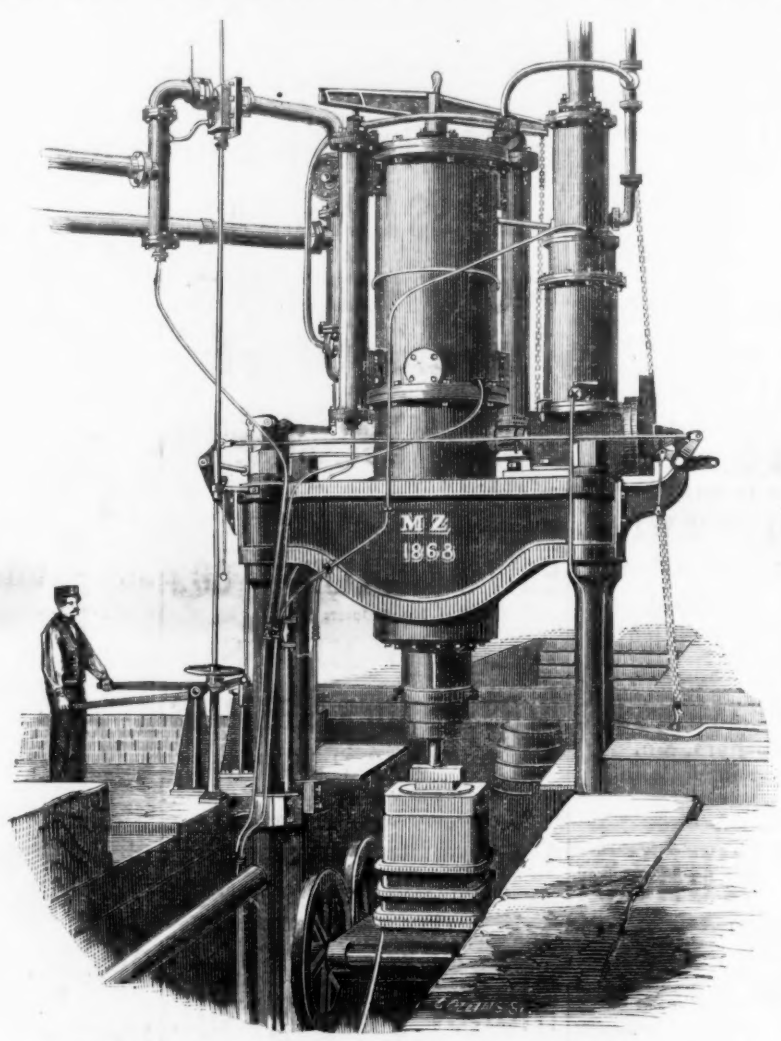
Compressed Steel.

The manufacture of steel in large masses, although it has made vast strides during the past few years, is still characterized by many features requiring improvement, and especially amongst these may be mentioned the means by which homogeneity of structure is attempted to be secured. In ordinary practice steel is at present, to a large extent, cast into ingots which are honeycombed more or less by bubbles of gas distributed throughout the structure, and after solidification has taken place, it is attempted to displace these bubbles by the processes of cogging, hammering and rolling the material while in a heated state. During the earlier stages of this treatment the steel is tender, and requires to be dealt with carefully, but in proportion as its homogeneity increases it becomes fit to resist more severe handling, the increase in its toughness, doubtless, to some extent, marking the expulsion of the gas bubbles and the welding together of their sides under the various compressing processes the material undergoes. It is undoubtedly true that this mode of treatment, when skillfully carried out as it is at our large works, gives excellent results, and produces a most valuable structural material; but it is equally true that it is far from being free from objections, while it is in some respects opposed to what may be theoretically considered the rational mode of procedure. In casting ingots it not unfrequently happens that the bubbles of gas are largely formed near the outer surface, and during the processes of reheating these bubbles are apt to be opened up by the wasting of the surface, thus affording opportunities for the entrance of dirt and the formation of scale within the bubble cells, and, as a necessary consequence, interfering with the obtaining of a solid homogeneous mass. Under these circumstances, and inasmuch as it is at present scarcely possible to prevent the formation of the gas bubbles in the ingots during the process of casting, so long at the ordinary plan of teeming them in metal molds is adhered to, it is not surprising that the idea early suggested itself of getting the desired homogeneity by subjecting the metal to compression while in a liquid state, instead of allowing it to solidify before attempting to remove the bubbles. Such a mode of procedure is certainly a rational one—if we allow for the moment that the casting of perfectly solid ingots is at present unattainable in regular practice—and, notwithstanding the practical difficulties attendant upon its being carried into effect, it is somewhat surprising that greater progress has not been made in its general application.

The plan of increasing the solidity of castings by compressing the metal while in a molten state is very far from being new, and, as applied to copper, it has been in regular use at the Broughton Copper Works, Manchester, for about twenty years past. As regards steel, the credit of suggesting its compression in the fluid state belongs, we believe, to Mr. Bessemer, who embodied the idea in one of his earlier patents, but in this country it has in practice been worked out almost solely by Sir Joseph Whitworth, who for some years has been engaged in developing the system, and of whose success we shall have to speak presently. It was in France, however, we believe, that the process was first practically carried out on a large scale, Messrs. Revollier, Bietrix & Co., of St. Etienne, having adopted it in 1867, and having built steel works specially arranged for it in connection with furnaces for making steel by the Siemens-Martin process. According to the plans adopted by Messrs. Revollier, Bietrix & Co., the metal was run from the furnaces into a ladle, which by means of a turntable crane was conveyed to the ingot molds and the metal teemed into the latter. The molds were placed on an ingot carriage, and after filling they were run under a hydraulic press and the metal subjected to compression until its temperature had fallen below that at which bubbles would be reformed. We do not know whether or not Messrs. Revollier, Bietrix & Co. are still using the compressing process, nor what success has attended their latest experiments with it, but we know that during their earlier use of it they produced some very compact sound ingots, but also many failures. Not content with treating ingots, Messrs. Revollier, Bietrix & Co. also compressed, with varying success, more complicated castings, such as tires, rings for guns, &c., but in dealing with such a manufacture they had to contend against the difficulty of running the metal at a lower temperature than was consistent with efficient compression, the initial temperature of the metal on leaving the furnace being reduced by its transfer by the ladle, &c. The result was that to obtain the necessary liquidity in the molds they were compelled to resort to the use of a metal containing a higher percentage of carbon and hence a lower melting point, but this metal again was unfitted for tires, &c., on account of its hardness and brittleness, and hence failures. One great difficulty connected with the affair thus was that by the Siemens-Martin process it was not possible to deliver a mild steel into the ladle at a temperatuae so much above its melting point as to allow of it at length reaching the molds at a temperature suitable for undergoing compression. With the Bessemer process less difficulty is experienced in this way, the initial temperature being higher; but even where Bessemer steel is compressed, as at the Neuberg Works, in Austria, it is found to be very important to keep up the temperature of the steel before compressing by heating the ingot molds before the steel is teemed, and by getting the molds under the press as promptly as possible after they have been filled.

The arrangements for compressing steel, which have for some years been in use at the Neuberg Works, were planned by Herr Josef von Stummer-Traunfels, and they have proved very successful, while they are also very simple. At Neuburg the steel from the converters is run into a receiver which is lifted by a powerful hydraulic crane on to a suitable carriage, and is then run on to a bridge over the "press pit." At the bottom of this pit is a line of rails so that the ingot molds mounted on carriages can be brought under the bridge to be filled with steel from the receiver and then promptly run under the press.

The ingot molds are as usual made for conical ingots, the section at the lower part being the ordinary one of an irregular octagon—or rather a square with the corners chamfered off—while at the upper part this section changes to circular, the upper portion of each mold being cylindrical, internally, for a length of about 6 in., so as to form a guide for the press plunger. Externally the molds are circular, and they are turned slightly conical, whilst steel hoops are shrunk on them to enable them to resist the internal pressure.



HYDRAULIC PRESS FOR COMPRESSING STEEL AT THE NEUBERG STEEL WORKS, STYRIA.

The conical form of the ingots would, of course, cause the fluid metal to exert an upward pressure tending to separate each mold from its base, and to resist this the molds are furnished with strong flanges by which they can be secured to their bases. The mold bottoms, we may add, have a slight depression in the center, and in this is placed some fire clay on which the metal falls when teemed. This arrangement is employed to prevent the bottom from being injured by the pouring of the metal, it being important to keep the bottom sound, as it might otherwise give way under the action of the press.

Each ingot mold is mounted on its own carriage, the latter carrying it at such a hight that when run under the press the top plate of the carriage, on which the bottom of the mold rests, is clear of what we may term the "anvil" of the press, this being a strong casting fixed on firm foundations. The pressure imposed by the press varies from 400 to 700 tons, and it is evident that the ingot carriages could never be made to resist such a pressure. To avoid the necessity for this the lengths of rails on which a carriage rests when under the press are balanced so that when they are merely loaded with the weight of the ingot, mold and carriage, they are maintained on a level with the other rails, but when the press is brought to bear on the ingot they descend and allow the top plate of the carriage to take a solid bearing on the "anvil" just mentioned. On the pressure being removed the rails rise again and the carriage can then be run on to make room for another. The general arrangement of the press and press pit at Neuberg is shown by the annexed perspective view.

It should be mentioned that when an ingot is being teemed in the press pit a kind of funnel of wrought iron plate is placed in the mouth to prevent the latter from being injured by the molten metal. When the mold has been filled, this funnel is withdrawn, and a short plunger is inserted by means of tongs specially constructed for the purpose. The mold is then run under the press and subjected to pressure for from half a minute to one minute, it being found that this period is amply sufficient to insure the desired result. We may add that no difficulty is experienced from metal endeavoring to squeeze out around the plunger. Any metal so endeavoring to escape at once becomes so cooled as to solidify.

At the Vienna Exhibition of 1873 some excellent specimens of compressed steel were exhibited by the Neuberg Works, and amongst others the broken ingot, from a photograph of which the annexed Fig. 1 has been prepared. This ingot was shown side by side with another broken ingot of the same steel, but uncompressed, an engraving prepared from a photograph of this second ingot being shown by Fig. 2.

If these two figures be compared, it will be seen that whereas in the ingot represented by Figure 2 there are a great number of bubbles near the outside—and,

FIG. 1.

FIG. 2.

in fact, only protected by a thin skin which might be injured in the reheating furnace—in the compressed ingot shown by Fig. 1 there is one bubble only, and that at the center of the ingot where it would most probably be thoroughly closed during the subsequent treatment of the ingot, or where if it continued to exist it could do little harm. Altogether we believe that the practice at Neuberg has been very successful.

Another mode of compressing steel, differing materially from that above described, is that which has been proposed and tried by Mr. R. N. Daelen, of Barop. According to this plan each ingot mold is fixed to a cast iron bed plate, which also forms the bed plate of a pump placed horizontally, and capable of forcing—by one or more strokes—sufficient fluid metal into the mold to give the required compression. At first we believe that Mr. Daelen ran the metal from below, but he has more recently turned the ingots from above, the molds being fitted with covers adjustable at different hights, and capable of being secured so as to resist the internal pressure. Of this arrangement, and some others which preceded it, we may probably speak on an early occasion.

We have now to speak of the progress which has been made by Sir Joseph Whitworth in the compression of steel, a progress respecting which little has been published, although admirable specimens of the material produced have from time to time been shown at various exhibitions. At his works at Chorlton street, Manchester, Sir Joseph Whitworth now has a magnificent plant for the production of compressed steel castings, this plant including four powerful hydraulic presses, capable of exerting pressures of from 2000 to 8000 tons, which are employed for compressing the molten steel, and also for forging. The castings as compressed by Sir Joseph Whitworth are some of them solid ingots, and some in the form of rings, the latter being preferred on account of the greater surface offered by the molds for the escape of gas. The molds used each consist externally of a massive steel hoop of sufficient strength to resist the pressure, there being placed within this a ring formed of cast iron bars arranged vertically. These bars, which are about 2½ in. thick, have at their side notches which form small radial passages for the escape of gas, these passages communicating with vertical channels formed by chamfering the outer corners of the bars. The molds are so carried that the vertical channels allow of the free escape of gas at the bottom as well as the top. Inside the bars the mold is lined with a layer of refractory sand, which protects the cast iron bars from the fluid steel, but is at the same time sufficiently porous to allow of the escape of gases during the process of compression.

In the case of annular castings the core is formed of a number of vertical cast iron bars, such as we have just described, these bars being arranged in a circle and duly protected by the refractory sand coating. The sections of the bars used in building up the cores are, we may add, such that some of the bars may be withdrawn inward so as to leave the core free.

The steel used at the Chorlton street works is produced partly by the Bessemer process, partly by the Siemens-Martin process, and partly in crucibles; it is, however, found that the crucible steel possesses no special advantages over that produced by the Bessemer and Siemens-Martin processes, and hence these two modes of manufacturing steel are those now principally used. When crucible steel is employed the crucibles are emptied into a ladle, and from this the steel is run into the molds and subjected to compression.

The pressure generally applied is about six tons per square inch, and Sir Joseph Whitworth states that the ingots are reduced to about seven-eighths of their original length. To some considerable extent, however, this reduction of length must be due to the dilatation of the mold after the pouring of the molten steel, a dilatation produced partly by expansion by heat and partly by the yielding of the several parts under the strain due to the very severe pressure. When first applied, the pressure causes the escape of molten metal around the plunger of the press; but the metal in the small clearance space soon solidifies and prevents further leakage. As the pressure goes on there is a copious discharge of gas—principally carbonic oxide—and the pressure is maintained even after this discharge ceases. Sir Joseph Whitworth states that in some cases he has applied a pressure of as much as 20 tons per square inch; but it is evident that such a pressure could be applied to small castings only, on account of the difficulty in obtaining sufficient resisting power in the molds. The castings, after their removal from the molds, are subjected at the Chorlton Street Works to a forging process under a hydraulic press, the tubes being supported for this purpose on a mandril.

The plant at the Chorlton Street Works is capable of dealing with very heavy masses, and on the occasion of a recent visit we had an opportunity of examining a compressed steel propeller shaft which will weigh when finished 18 tons. Amongst other examples there was also a lining for a marine engine cylinder 59 in. in diameter, 44 in. long and 1¾ in. thick; a hoop forging 57 in. in diameter, 56 in. long and 5¼ in. thick; a trunnion forging for a 35 ton gun, and other pieces of heavy work. The qualities of steel produced are various, according to the nature of the work for which the casting is intended; but wherever the explosive force of gunpowder is to be resisted, Sir Joseph Whitworth insists upon the material giving an elongation of 30 per cent. before rupture, and he states that he can now produce with regularity a steel which will give this elongation, and at the same time have a breaking strain of 40 tons per square inch, the test bars used being cylindrical, 2 in. long and with a sectional area of half a square inch.

We have now laid before our readers some particulars of the progress which has so far been made in the manufacture of compressed steel; but we regret to say that there is still wanting much information necessary to enable a true estimate to be made of the value of the compressing process. As we said at the commencement of this article, the process of compressing steel in the liquid state is one which we must regard as rational if ingots cannot be cast commercially without being more or less honeycombed; but going to the root of the matter, we are led to inquire how far this honeycombing is a necessity. It is perfectly well known to steel manufacturers that at some of the principal works at home and abroad thoroughly sound steel castings can be cast by "dead melting" the steel, employing molds with a non-conducting lining, and running the ingots with a sufficient head, and it is a question how far ingots so cast are inferior to those which have undergone compression. In other words, information is wanted as to the effect of compression on sound steel. If Sir Joseph Whitworth would run two ingots from the same melting of steel, subjecting one only to compression, and then test samples cut from the solid portions of both ingots, the comparative results would be of great interest, particularly if accompanied by further tests made of samples cut from the ingots, and subjected to forging. Such a series of tests would go far to show to what extent the admirable character of the material which Sir Joseph Whitworth is producing is due to the process of compression, or how far it is due to the careful selection of the materials from which the steel is made. The whole question of the production of high-class steel is, however, one on which much could be said, and it is, therefore, one on which it is unadvisable to treat at the end of an article which has already grown to considerable length. We shall, therefore, for the present dismiss the subject, but we propose to return to it, and to have something to say respecting other modes of treatment than that of compression in a fluid state.—*Engineering.*

Appropos of Garibaldi's project for diverting the course of the Tiber, at Rome, approved by the last Italian Parliament, it is now said that the idea is by no means a new one. From old letters, just unearthed, it appears that, at the beginning of the eighteenth century, the Jews in Rome applied to the Pope for permission to search the bottom of the Tiber, and for that purpose they asked leave to turn the course of the river a mile above and below Rome, for six months. They offered to pay the Pope $4,000,000 for the permission. The Jews believed they would find ten times as much as their outlay. Their offer was not accepted, as it was feared that the drainage of the river in the summer months, during which the work would be done, would produce epidemics. It would be strange indeed now were a project thus revived after a slip of nearly 300 years, to result in profit to the government undertaking it, instead of in the large expenditures necessarily anticipated.

A large number of French ports in the channel and bay of Biscay are undergoing changes or receiving improvement. The shipping accommodation at Le Havre is being completely remodelled and enlarged, and six of its docks are either in course of reconstruction or of transformation.

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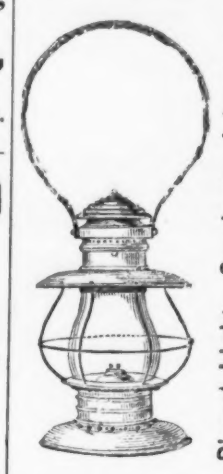

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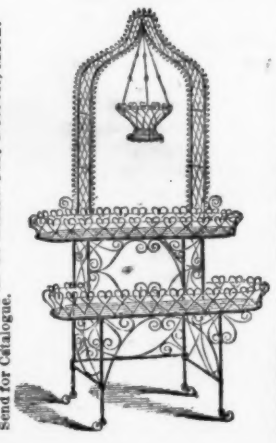

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Space in the Centennial.

The annexed rules for the information and guidance of exhibitors have been issued by the Bureau of Installation relative to space in the main exhibition building:

The space granted to an exhibitor within the building is available floor space, exclusive of the intermediate passages between the exhibits. It may be utilized in various ways, as follows:

By placing the products exhibited directly upon the floor.

By constructing a low platform upon which they may be placed.

By erecting counters upon which they may be arranged.

By erecting ornamental columns, pyramids, cones, and partitions to obtain wall space.

By erecting show cases in which the exhibits may be tastefully displayed.

There will be no charge for space, but all platforms, counters, ornamental partitions, show cases and appurtenances must be erected at the expense of the exhibitor. No particular form or design is prescribed for the cases, counters, &c., but they must not exceed the following hights without special permission from the Chief of Bureau:

Show cases and partitions—Fifteen feet above the floor.

Counters—Two feet ten inches above the floor, on the side next the passage way.

Platforms—One foot above the floor.

In order to insure the advantageous and satisfactory location of products exhibited, applicants for space desiring to erect show cases, counters or partitions, must furnish to this bureau a scale drawing or tracing, showing clearly the elevation and ground plan of the same, and if the case is intended for inspection from all sides; if not, which sides are open to inspection, and which form the back or sides. In many instances cases will be placed back to back.

Exhibitors have the privilege of placing railings of approved design around the space allotted to them. All such railings must be of the uniform hight of two feet six inches above the floor level, and may be attached to the case by projecting brackets, or be supported by posts from the floor. In every instance the floor space granted includes the area embraced by the railing. The line of the railing will be placed upon the line of the passageway, and no railing will be allowed to project beyond the case or counter into the passage way.

Exhibitors desiring to display products pendant from the roof trusses must in every case obtain special permission to that effect from the chief of bureau.

No exhibitors will be permitted to display products in such a manner as to obstruct the light or vistas through the avenues and aisles, or occasion inconvenience, injury, or disadvantageously affect the display of other exhibitors. Signs will not be allowed to project beyond the floor area of the space allotted, nor will signs made of canvas or paper be permitted. The naves, avenues, aisles and public passage ways remain under the control of the United States Centennial Commission; and no trophies, decorations, portals, fountains, or other special exhibits will be permitted in them, except by special permission of the Director General.

Each column within the building will be lettered and numbered, the letters designating the lines of columns, lengthwise, from east to west, and the numbers the lines, crosswise, from north to south. Each exhibitor will have his location defined with reference to the nearest column, and the official directory of the building will give the positions according to this system.

Exhibitors having space granted in close proximity to the columns or outer wall of the building will be furnished from this bureau with drawings showing the form of the columns, the water spouts, and the available wall space. Cards stating the exhibitor's name, class of objects, catalogue number, place of manufacture and price, will be affixed to goods under such regulations as the commission may prescribe.

All products arriving at the doors of the building by rail, wagon, or otherwise, will be received by the Bureau of Transportation and delivered on the space granted. Each exhibitor will then be expected to commence unpacking and arranging his goods without delay. Provision has been made for the removal and safe storage of empty boxes and cases immediately after unpacking.

All exhibits must be arranged, completely and finally in position, not later than May 1, 1875. The chief of the Bureau of Installation has charge of the allotment of space to exhibitors in the United States section. The right to alter or amend these rules is reserved.

A. T. GOSHORN, Director General.
HENRY PETTIT,
Chief of Bureau of Installation.

PHILADELPHIA, July 30, 1875.

Lead and Tin Foil.

Many metals and alloys can be hammered or rolled into thin sheets, and in this operation the ordinary molecular structure, which they have when cast, is changed, and they become more dense. Among these metals are gold, silver, copper, tin, platinum, lead, zinc, aluminum, iron, nickel, and their alloys; other metals are not malleable but brittle, and cannot be rolled or hammered out alone, nor drawn into wire.

Beside the noble metals, which were used by the oldest civilized nations, bronze (an alloy of copper and tin) was also employed by the ancients for useful utensils, for at the present day a glance at Pompeii teaches us how extraordinary artistic and neat were the water vessels, stands and holders of all kinds, as well as the water spouts adorned with bronze figures. We know that the Romans, and perhaps the Phœnicians, obtained their tin from England. But the common metals then known, like copper, tin, lead and iron, were not prepared in such large quantities, and, consequently, must then have represented a much higher relative value than now.

Lead, which occurs in nature, for the greater part, in combination with sulphur only, as sulphide of lead (galena), is the easiest of all metals to reduce from its ores, being obtained at a comparatively low point of fusion. For this reason, as well as on account of the frequent deposits of lead ore in the old world, especially in Greece, Sardinia and Spain, civilized nations employed metallic lead extensively for pipes and in sheets. In almost every house newly excavated in Pompeii, there may be seen the thick cast lead pipes, with the names of different firms and the place of manufacture cast upon them. These antiquities are chiefly preserved in the museum at Naples. Not only Rome and Greece made use of this easily fusible metal, but even the still older nations of India and China possessed, and still possess at the present time, great skill in smelting lead and tin. Proofs of this are the well known genuine tea chests which are lined with lead, packed, and soldered up in China for shipment.

The Chinese employ an alloy of lead with some tin and copper to prepare metallic foil as thin as paper, in which large lots of tightly pressed tea are packed and shipped to all parts of the globe. The fusible alloy is melted and poured on a smooth stone; and as the mass solidifies slowly, because the amount of heat for fusing can only be small, the Chinese workman has time enough to throw a second smooth stone upon the still liquid mass, and finally, in primitive style, jump upon it so as to increase the pressure. The Chinese people are so extraordinarily conservative in the customs that we cannot expect that this method of making sheet lead will suffer any advance by the introduction of rolling or hammering. In Europe, especially in Germany, it is not so very long since men were obliged to work with very limited aids. Then there sprang up in Venice, and afterward in Nuremberg, the mirror makers, who employed their tin foil with mercury for covering the glass plates.

A mirror of the size that we are accustomed to have now could not be obtained in the last century, because the sheets of tin foil were not large enough to make them; besides, the wide cylinders for mirror glass could not then be made.

The demand for larger sheets of metal was satisfied gradually by the progress and extension of machine building, although large pieces of copper, tin and iron had already been hammered out with great skill. A few decades ago snuff was packed in rolled lead foil, but this has been prohibited for a long time. In its place has appeared pure tin foil, which is quite cheap on account of its great thinness and small specific gravity. By reason of its manufacture in larger quantities and new discoveries of tin ore in Australia, the price of tin foil has fallen to one-half its previous price.

Tin foil is chiefly used for a reliable air tight covering. Like the well known tin boxes used for preserving food on a sea voyage, so wrapping an article in tin foil protects it from the external air, so that it does not decay. Extract of meat, sausage, cheese, etc., are protected in this way.

On the other hand, tin foil prevents evaporation and drying, as of snuff, wine, liqueurs, boquets of flowers, etc. The air tight metallic wrapper preserves the costly odors and perfumes of many fine articles, as chocolate, fine cigars, vanilla, cosmetics; there is, in fact, no more reliable protection against the volatilization of valuable odorous substances than the non-poisonous metallic foil referred to. Not only is this object accomplished, but with it are combined neatness and elegance, the useful and the agreeable, since the silver white, polished, and mirror like shining metal makes a better impression of neatness than any other envelope for a commercial article. This exterior at once adorns the contents and indicates their high value.—*A. Andersohn.*

The Universal Diffusion of Heat the End of all Motion.

Prof. Balfour Stewart recently delivered a very interesting lecture in Manchester, England, on the "Energies of Light and Heat." The lecturer explained the two great laws of thermo dynamics, one of which determines the quantity of mechanical energy necessary to produce one degree of heat, and the other the law according to which heat may be converted into work.

This latter law showed that no work could be obtained out of heat unless we had a fall of heat from a higher to a lower degree, just as we could get no work out of water unless it fell from a higher to a lower level. Upon this principle the uses of the boiler and condenser in a steam engine were explained, and it the work done by the globe, it was shown that the heat passed from a great boiler in the shape of the equator to condensers in the shape of the poles. Our winds were due to the passing, in obedience to this principle, of the heat from the equator to the poles. While all work, as in the boring of a cannon or in friction, could be changed into heat, all heat could not be changed into work. According to this principle of the universe, the universal diffusion of heat would ultimately be the fate of all energy.

While the principle of the conversion of energy was quite true, there was also another principle equally true, called the dissipation of energy. That was, as it were, the great communism of the world. It tended to distribute itself equally in such a way that no work could be got out of it, and would ultimately bring the visible universe to an end, at least, so far as available energy was concerned. Heat denoted two kinds of energy, namely, absorbed heat and radiant light and heat. Hot bodies parted with their heat to cold bodies by three processes—conduction, convection and radiation.

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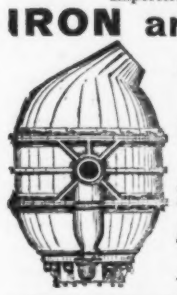
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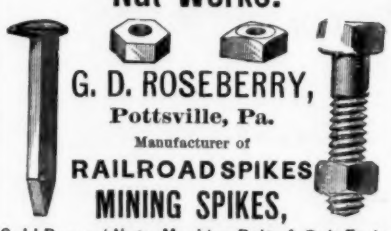
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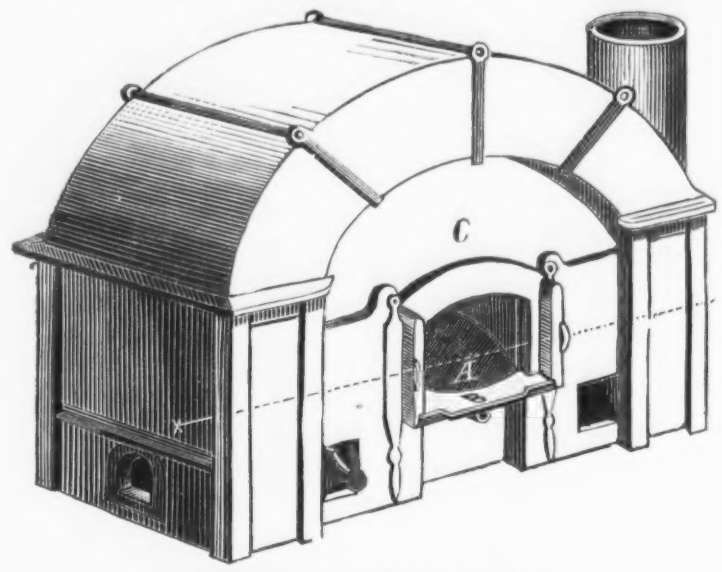
New Patents.

We take from the records of the Patent Office in Washington the following specifications of certain patents lately issued, which will be found interesting:

IMPROVEMENT IN METALLURGIC FURNACES.

Specification forming part of Letters Patent No. 165,630, dated July 13, 1875, issued to William Swindell, of Allegheny, Pa.

Figure 1 is a perspective view of a furnace embodying the invention. Fig. 2 is a horizontal



IMPROVED METALLURGIC FURNACE.—*Fig.* 1.

section on the line *x x* of Fig. 1. Fig. 3 is a vertical section on line *y y* of Fig. 2; and Fig. 4 is a similar section on the line *z z* of Fig. 2.

Like letters refer to like parts wherever they occur.

The invention relates to the construction of metallurgic furnaces of that class with which regenerators are commonly employed; and it consists in a novel arrangement of the regenerator passages for the air, gas and products of combustion above the hearth, and in such relation thereto that the full heating effect of the products escaping from the hearth is obtained, the durability of the furnace increased, and economy of space and material effected.

Heretofore, in the construction of metallurgic furnaces having regenerators connected therewith, the regenerator has been built separately from the furnace, or the hearth has been built over the regenerator chambers—the first form requiring greater room, and not utilizing the heat to the best advantage, and the second form productive of injury to the regenerator, on account of the weight of the superimposed furnace hearth. These objections are overcome by constructing the furnace as follows:

In the drawing, A represents the hearth of a metallurgic furnace, supported as at *a a*, to permit the circulation of air beneath the hearth, and provided with working doors B B. C is the roof or crown, over which is sprung an arch, D, leaving a clearance between the arch and roof for the free circulation of air, so that undue heating of the furnace walls is avoided, and provision is made for renewing the

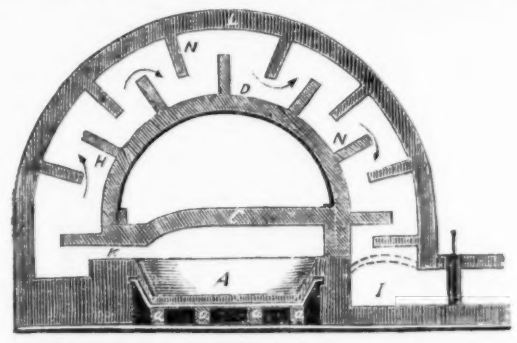


Fig. 3.

crown of the furnace and side walls. The arch D forms the floor of one set of flues E, and of the flues H for the waste gases—the whole being inclosed by a second arch, L, which forms the outer wall or roof of the flues H, and of gas flues or passages F. The space between the arches D and L is divided by cross-walls O, and the alternate flues of the series thus formed are subdivided by intermediate arches or walls M M, which separate the passages for the air and gas, while the passages traversed by the products of combustion are rendered tortuous by projecting walls or ledges N, which retard the escaping waste gases, retaining them in contact with the side walls of gas and air flues. By this series of walls and cross-walls are formed the gas flues F, air flues E, and waste gas flues H—the first two provided with suitable inlets, guarded by valves *e* and *f*, and the latter communicating with the stack through cross flue I. The intermediate walls M are provided at the mouth of the furnace with horizontal extensions *m*, which deflect the air, causing it to enter the furnace at a point above the gas inlet. K is the neck or throat of the furnace, and is arranged relatively to the point where the gas and air are admitted to the flues E and F, so as to always preserve the temperature of said flues E and F above the point at which carbon and soot will be deposited, whereby the clogging of the flues is prevented.

The operation of the devices is as follows: The valves *e* and *f* being raised, air will enter the passage E from beneath the hearth, where it has already absorbed some heat from the furnace bottom, and gas will enter the flue F from a suitable generator or reservoir. The two currents, traveling in the line of the arrows, will absorb the heat from the side walls O, to which it has been communicated by the outgoing products of combustion, and the air and gas, becoming mingled at the mouth of the furnace, will burn upon the hearth. The waste gases, escaping at the opposite side of the furnace into flues H, traverse the same, in turn giving up their heat to the incoming air and gas, finally escaping into the stack through cross flue I. The products of combustion, air and gas all travel in the same direction, and the waste gases consequently are hottest at the point where the gas and air first enter into the flues E and F.

From the description of the construction and operation of the above devices it will be seen that the relative position of the hearth and regenerator best adapted for convenience in working has been preserved. The location of the regenerator is such as to utilize all the heat from the waste gases, and at the same time permit a free circulation of air around the hearth to preserve it. The form of the regenerator enables the usual form of brick to be employed

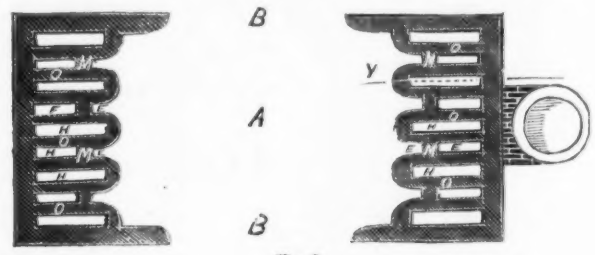


Fig. 2.

in its construction, and neither the hearth nor regenerator is encumbered by the extra or superimposed weight of the other.

Claim.—1. In combination with the hearth A, the arched regenerator, located over the hearth and spanning the same, to permit a circulation of air over the hearth.

2. A regenerator having air and gas flues E and F, arranged side by side, separated by a common wall, M, and alternating with flues H for the waste products.

3. In a regenerator furnace, the air and gas flues, E F, separated by a common wall, M, in combination with the flues H, provided with deflecting ledges N.

4. The throat K of the furnace, in combination with the flue F, substantially as specified, so that the waste gases escaping from the hearth shall impinge upon the gas flue near the point where the gas is admitted.

IMPROVEMENT IN COMPOUNDS FOR WELDING, HARDENING AND TEMPERING STEEL.

Specification forming part of Letters Patent No. 165,378, dated July 6, 1875, issued to Sarah Slater, of Philadelphia, Pa.

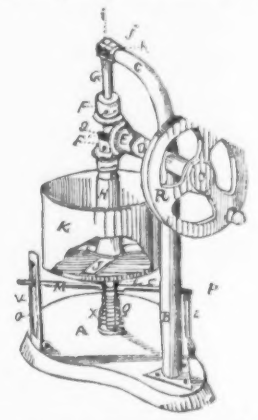
This invention relates to that class of compounds used for welding, hardening and tempering steel and wrought iron; and it consists in a composition formed by mixing the following ingredients in about the proportions given: Wrought iron filings, 1 ounce; borax, 1½ pounds; muriate of ammonia, one-half pound; cyanide of potassium, one-quarter pound; prussiate of potash, 11 ounces; corrosive sublimate, 1 pound; alcohol, 1 gill. When thoroughly mixed and dried it is reduced or pulverized. For welding, the compound is used dry. For hardening and tempering, it is mixed with water and used in a fluid state.

Claim.—A compound for welding, hardening and tempering steel and iron, consisting of a mixture of wrought iron filings, borax, muriate of ammonia, cyanide of potassium, prussiate of potash, corrosive sublimate, and alcohol, in the proportions as set forth.

MEAT CUTTER.

To H. P. Goddard, Orange, Mass.—The meat to be chopped is put in a receptacle which is vertically adjustable. In this receptacle are two rotating knives—one moving to the right, the other to the left—which chop the meat.

1. In a chopping mechanism, substantially such as described, the shaft G, provided with the knife J and gear F, and the sleeve H, provided with the gear F', and knife I, in combina-



tion with the tub K, gear E, standard B, and step Q.

2. In a chopping mechanism, substantially such as described, the tub K, arranged to slide vertically in relation to the knives I J.

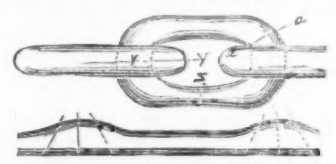
3. In a chopping mechanism, the lever M, spring *x*, and serrated standard N.

CHAIN CABLE.

To C. A. Chamberlin, Camden, N. J.—1. A chain cable composed of links having the broad inner faces *c c*.

2. A chain cable composed of links with increased depth and thickness at the points of junction of the sides and bends, and flattened at those points, so that the depth will be greater than the thickness, as at *a a*.

3. A flexible chain cable composed of links



with flattened bends of increased depth and thickness in the line of strain.

4. A chain cable composed of links constructed with increased depth and thickness at the points of junction of the sides and bends, as at *a a*, and flattened at said points, and increased in depth and thickness in the bends in the line of strain, as at *y y*, said bends being likewise flattened.

5. A chain cable, the links of which have side bars with broad inner faces *c*, and of increased depth and thickness at the points of junction of the sides and bends, as at *a a*, and flattened at said points.

6. A chain cable, the links of which have side bars with broad inner faces *c*, and flattened bends of increased depth and thickness in the line of strain, as at *y y*.

7. A chain cable composed wholly or in part of links elliptical on the inner face, as at *c*, increased in depth and thickness at or about the points of junction of the sides and bends, as at

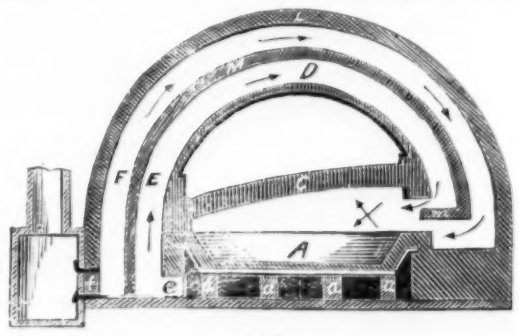


Fig. 4

a a, and increased in depth at the bends, as at *y y*.

The Washburn Iron Works, at Worcester, Mass., are closed for an indefinite period, on account of a lack of orders.

The Lackawanna Iron and Coal Company started up one of their rolling mills August 4, and blew in a new furnace on the 2d.

The Allentown, Pa., *Chronicle* says: The Bethlehem Iron Company, Longswamp, Berks county, started up last week again.

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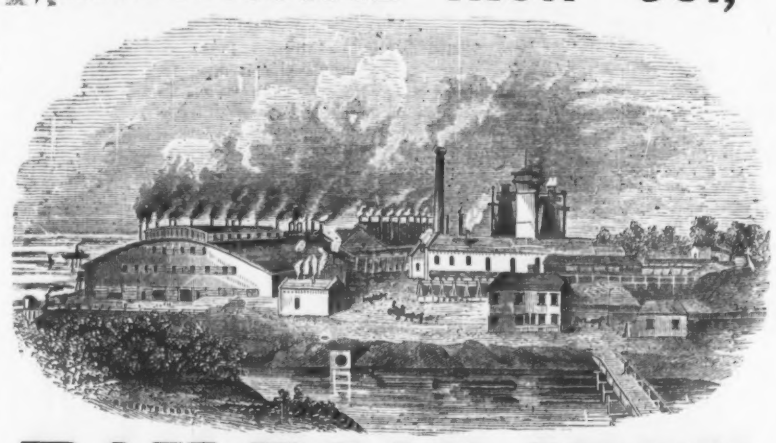

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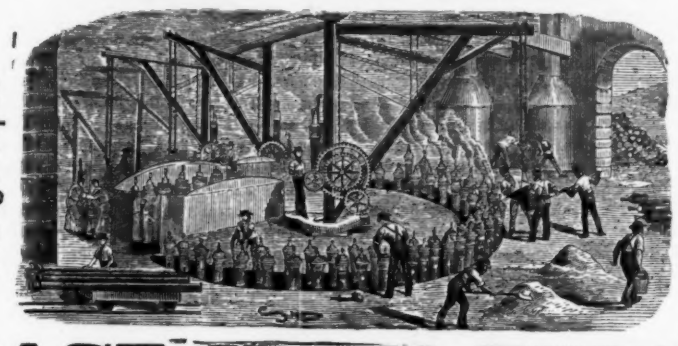

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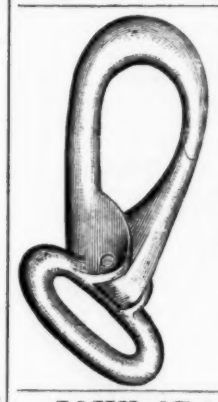

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On the Uses of Steel.

By J. BARBA, Chief Naval Constructor, Lorient.

No. II.

Tempered bodies resume generally their properties when they are annealed, that is to say, when they are left to cool slowly after having been sufficiently heated. When annealing is effected on a homogeneous body, the composition of which does not change under the influence of heat, its effect is simply to restore its original elasticity. In order that the annealing should be thorough it is necessary to attain a sufficiently high temperature, and that the time of cooling should be increased as the size of the mass increases, in order that there may only be a slight difference of temperature between the interior and the exterior. The first condition is necessary to allow the metal to recover its elasticity lost by tempering, the second condition ought to prevent in the various phases of cooling, the creation of undue strains in the body of the metal.

In bodies of a complex nature like steel, the effect of annealing is compound; independently of the restitution of elasticy to the fibers changed by tempering, it produces a separation of part of the mixed carbon. That bodies may be homogeneous after annealing, it is necessary that this separation should take place equally throughout the mass; and it will be easily seen that slow cooling is indispensable in order to obtain this result. For large pieces of steel, the period of cooling must extend over several days, sometimes over several weeks.

When steel is perfectly annealed, the molecular tension previously set up subsides, and the fibers extend under the influence of heat, to resume their natural elasticity.

If the piece annealed has been only locally tempered the result will be the same. If it is a bar composed of different qualities of steel, the process will bring about a little more homogeneity. By the effect of the high temperature to which the bar is raised, the lines of demarcation will cease to be clearly marked, and the differences between the various parts will be less visible, as the bar is exposed longer to the action of heat. In annealing this dissemination of the carbon is due to the temperature to which the steel is raised; in tempering this effect is increased by the pressure resulting from rapid cooling.

Annealing should not be effected at too high a temperature, for the metal, if exposed to too great a heat, is likely to change in the fibrous texture given it under the hammer; it would crystallize with slow cooling, and would cease to have any elasticity. It would, in short, be burnt.

In any one given nature of steel there may exist a series of intermediate conditions between the natural state, and that corresponding to the maximum temper of which it is susceptible. The different properties of the same steel follow a law of variation extending between these two extreme points. In its natural state steel has a hardness increasing in proportion as it contains more carbon. Tenacity or resistance to rupture follows the same law, increasing continuously from soft iron to the hardest steel. The strains which different natures of steel can support before reaching their limits of elasticity follow in the same way. On the other hand, extension under load decreases when the quantity of carbon, and consequently the hardness and tenacity increases. Facility for welding varies with the degree of extension; it is great in slightly carburated iron, and almost ceases to exist in steel rich in carbon.

When different kinds of steel are tempered under similar conditions, the qualities of hardness, tenacity, and extension to rupture follow the same law observed in the natural condition; hardness and tenacity increase with the temper, extension diminishes. Lastly the difference between steel in its natural state, and the same steel tempered, is less as the quantity of carbon is less, and it approximates more closely to pure iron.

We will only consider here the temper obtained by the rapid cooling of steel heated to an elevated temperature and changed into a cold liquid. Under these conditions the constitutional changes induced by tempering ought to decrease quickly in proportion as the steel operated on is less carburated. In very hard steel the elastic limit is exceeded only under very high loads; in mild steel this limit is much more easily reached, and the same conditions of cooling will thus produce a contraction, and a pressure much less in the second case than in the first.

From the foregoing it will be seen that whenever a material possessing great hardness and tenacity is desired, and one that will not be susceptible of deformation before rupture, the more highly carbureted steels must be employed; from this nature cutting tools are made. For constructive purposes a much more elastic material is necessary, and less carburated irons must be employed—these are the mild classes of steel.

It will also be understood that tempering followed by annealing may be employed to improve certain irons more or less carburated, and especially to re-establish the homeogeneity lost during the different stages of manufacture.*

All the different classes of commercial iron contain a small quantity of carbon, and are therefore subjected, like steel, but to a less degree, to the influences of tempering and annealing. Heat produces in the iron the solution of the carbon, and a dissemination of the portion mixed with the metal, and probably of other foreign matters. The compression which follows the tempering increases this dissemination. Lastly, in annealing, the heat continues the effect produced, and slow cooling allows the molecules so to group themselves as to remove almost entirely the various internal strains.

In a large number of cases the operation of tempering is succeeding by a partial annealing of such a character as to reduce the extreme molecular tension, but preserving in the metal the chief of the special properties due to the tempering, hardness, tensile strength, and a more homogeneous composition. Afterward a more active annealing takes place, in order that the normal elasticity may be restored.

Partial annealing after tempering is practiced on armor plates. The tempering after rolling renders them more homogeneous throughout their mass, by the compression produced in every direction. Hardness or resistance to the penetration of projectiles is increased, but the metal becomes less tough as the tempering is more active, or with a given range of temperature as the plate is thicker.

This liability to break would disappear entirely with complete annealing, but to preserve the hardness and to prevent all internal crystallization, the annealing is only carried on at a dull red heat; this temperature is insufficient to restore to the various fibers all their elastic properties, but it allows it to preserve the greater part of the hardness due to the tempering.

In plates the thickness of which is less than ·787 inches this annealing is sufficient to effect the desired object, and a metal is obtained offering great resistance to the penetration of projectiles, and not breaking easily under their impact.

In thicker plates subjected to tempering and annealing under the same conditions, the molecular tension after tempering, preserves more value after annealing; the plates always offer a high resistance to the penetration, but they are markedly brittle. To remove this inconvenience, it would be necessary to increase the annealing; by so doing the plates would offer a little less resistance to penetration, but they would not break under the blow of the shot.

The same result ought to be arrived at by diminishing the intensity of the temper; the temperature to which the plates require to be raised cannot be reduced, since in order to secure homogeneity, it is necessary to produce in the iron a solution of all foreign matters, but the rapidity of cooling can be diminished by using a liquid, the conductivity of which is less than water, or by raising the temperature of the water if it be employed. By this means the heated mass will be subjected to a cooling action, sudden at first to prevent the separation of the carbon, and slower afterward to avoid the creation of extreme molecular tension.

These views may be illustrated by the recent investigations of M. Caron. In his laboratory experiments he has been able to bring to the same degree of hardness, toughness and elasticity, steel springs, which had been, some tempered and annealed by the ordinary mode, and the others simply tempered in hot water. He expresses as follows his views on the result of his experiments. "Tempering with hot water, or, better, boiling water, curiously modifies mild steel containing from two to four thousandths of carbon; it increases sensibly its toughness and elasticity without sensibly changing its mild quality."

M. Caron in other experiments has succeeded in restoring burnt iron by tempering it in a hot liquid; he employed a solution of sea-salt raised to 110° Cent. The original texture is then restored to the metal by the high compression due to the tempering, and the extension of the fibers which follows as a natural consequence. The slow cooling following this first effect allows the fibers to recover the chief portion of their elastic character, in spite of the first abrupt cooling. It is known that burnt iron can also be restored by raising it to a white heat, and then placing it under the rapid action of a steam hammer. Thus the tempering acts in the first case, just as the hammering acts in the second; it contributes a forging action producing an extension in the metal. It is possible from this that the quality of ingots may be improved by successive temperings, which would place them under the same conditions as if they had been subjected to the hammer or the rolling mill.

The numerous properties of steel, its powers of resistance, its extension before rupture, the manner in which it is influenced by tempering, furnish convenient means of comparing the different natures of this material; it would be very difficult to make any comparison based on their various compositions.

Until within comparatively a few years steel more highly carburated, and more subject to all the faults already named than the mild qualities made to-day at many works, was always employed. The substitution of ferro-manganese for manganiferous pig iron, to produce carburation at the end of the process, either in the Bessemer converter or the Siemens-Martin furnace, has resulted in obtaining metal containing a minimum quantity of carbon, and free of the oxides of iron which the manganese is designed to reduce or to remove.

The steel employed in England and in France for the construction of large ships may always be classed as mild steel; but in France alone we believe has cast steel been employed until the present time to any extent.

The constructors of the English navy require that steel plates should be tested to show a resistance to rupture of 32·9 tons per square inch in the direction of the fibre, and 29·8 tons per square inch against the fibre. The resistance should in no case exceed 39·9 tons per square inch.

For the ships constructed at Lorient and Brest, where cast steel alone has been employed, a minimum resistance to rupture of 28·5 tons per square inch for plates and angle iron has been required, together with an extension of at least 20 per cent. For deck beams, &c., formed by double T bars 11 13-16 in. deep in the web, on account of the difficulty of manufacture, the extension before rupture is reduced to 18 per cent. The plates are furnished in almost equal proportions from the works of Creusot and of Terre-Noire. The double T beams are made by MM. Marrelfreres, of Rive de Gier, from Terre-Noire steel, and other bars are supplied by the Creusot Works.

The different classes of steel have been manufactured at Terre-Noire by the Bessemer process, and at Creusot by the Siemens-Martin process, and both these large works are now enabled, thanks to every experiment and the certainty of their manufacture, to deliver mild steel of practically a uniform quality. They can, however, vary the qualities to suit exactly the requirements of the purchaser. The following Table, No. III, is extracted from a classification recently adopted at the Creusot Works of the different ranges and qualities that this establishment can deliver to order.

The figures given in this table are obtained by a wide range of trials; nevertheless they are only given as being indicative and comparative. The test bars were all turned to a length of 3·93 in., and to have a cross section of ·31 square in. The bars were raised to as nearly as possible the same temperature, corresponding to bright red heat, and were then tempered in oil. The steel delivered at Lorient and Brest, offering a minimum resistance to rupture of 28·5 tons per square inch, should not, according to table No. III, attain their limit of elasticity until a load of 13·94 tons has been exceeded. Assuming that iron plates arrive at their elastic limit under a load of 10·4 tons per square inch, which is rather a high average, we find that in a given structure an iron plate having a thickness $=e$ can be replaced by a steel plate whose thickness equals e', determined by the relation $22\,e' = 16{\cdot}5\,e$ or $e' = \frac{3}{4}\,e$. (This only refers to plates exposed to direct tensile strains). An iron plate ·47 in. thick can thus be replaced by a steel plate ·35 in. thick.

TABLE III.—CLASSIFICATION OF CREUSOT STEEL.

A. CLASS.

Number of Classification.	Non-Tempered. Load Corresponding to Rupture.	Non-Tempered. Load Corresponding to Elastic Limit.	Non-Tempered. Percentage of Extension at Rupture.	Tempered. Load Corresponding to Rupture.	Tempered. Load Corresponding to Elastic Limit.	Tempered. Percentage of Extension at Rupture.
	Tons per sq. in.	Tons per sq. in.		Tons per sq. in.	Tons per sq. in.	
1	48·31	24·72	13	74·16	45·64	·2
2	46·67	23·96	15	70·05	43·30	4·8
3	44·57	23·07	17	66·95	41·71	7·2
4	43·61	22·12	19	61·37	38·42	9·4
5	39·81	21·04	21	56·17	35·63	11·1
6	36·77	19·65	23	49·89	31·90	13·2
7	33·72	18·25	25	43·49	27·77	14·6
8	31·19	16·86	27	38·80	23·96	18·0
9	28·53	14·26	29	35·63	21·30	21·0
10	....	....	..	....	....	....
11	....	....	..	....	....	....

B. CLASS.

Number of Classification.	Non-Tempered. Load Corresponding to Rupture.	Non-Tempered. Load Corresponding to Elastic Limit.	Non-Tempered. Percentage of Extension at Rupture.	Tempered. Load Corresponding to Rupture.	Tempered. Load Corresponding to Elastic Limit.	Tempered. Percentage of Extension at Rupture.
	Tons per sq. in.	Tons per sq. in.		Tons per sq. in.	Tons per sq. in.	
1	49·26	26·05	13	75·64	48·06	3·8
2	47·49	25·36	15	72·91	47·87	5·7
3	45·52	24·88	17	68·47	45·01	7·8
4	3.·90	23·74	19	62·76	41·46	10·2
5	40·83	22·70	21	57·70	39·37	12·6
6	37·85	21·42	23	51·99	34·87	14·8
7	34·87	20·16	25	46·79	31·57	17·0
8	32·01	18·76	27	41·72	28·34	19·5
9	29·60	17·43	29	37·28	25·36	22·0
10	26·18	14·96	32	32·84	20·92	24·2
11	.....	....	..	....	....	..

C. CLASS.

Number of Classification.	Non-Tempered. Load Corresponding to Rupture.	Non-Tempered. Load Corresponding to Elastic Limit.	Non-Tempered. Percentage of Extension at Rupture.	Tempered. Load Corresponding to Rupture.	Tempered. Load Corresponding to Elastic Limit.	Tempered. Percentage of Extension at Rupture.
	Tons per sq. in.	Tons per sq. in.		Tons per sq. in.	Tons per sq. in.	
1	50·08	27·39	13	77·98	54·89	·5
2	48·31	26·75	15	75·00	51·99	0·6
3	46·40	25·99	17	71·00	49·45	8·6
4	44·25	25·23	19	66·44	45·96	10·8
5	41·78	24·28	21	62·56	43·62	13·3
6	38·99	23·14	23	56·93	39·43	16·0
7	35·00	22·06	25	51·48	36·08	18·2
8	33·19	20·73	27	46·02	34·46	20·6
9	30·56	19·46	29	40·45	28·72	23·4
10	27·58	17·62	32	33·73	23·58	27·6
11	24·92	15·47	35	29·16	20·79	33·0

At the port of Lorient all tests for tensile strains made on the steel, sent either from Creusot or Terre Noire, have been carried out with a testing machine constructed by M. Romain, and having a range from 0 to 25 tons. The test bars were formed with a constant section and a length of over 7¾ in.; at each end was left a square piece, which fell into the shank of the bar by easy curves. Great care was required to avoid angles which would have located premature lines of rupture. Holes were drilled through the ends, through which pins passed and connected them to the jaws of the testing machine. The strain was produced by loading one or other of the two scales; 44 lb. weights were gradually added, leaving a certain interval of time between the addition of each increment of load, in order to allow the successive extensions to become developed.

In order to ascertain the extensions to rupture two points were marked on each test bar exactly 7¾ inches apart; to these marks were fixed the ends of a little apparatus which could easily be inspected, and which showed the gradual extensions with perfect clearness. An observer followed the travel of the needle and noted after each rupture the figure given by this instrument and the load in the scale. These tests were always made by the same persons. Independently of the tests for tensile strains the metal was frequently subjected to bending tests, samples for this purpose being cut from the plates or bars. This operation was effected by a hammer striking only the ends of the strip, but never the point of flexture.

As soon as signs of cracking appeared the experiment ceased, the power obtained, with all particulars, was carefully recorded, and kept for subsequent comparison. Sometimes this bending was effected under the hydraulic press, to avoid the effect of any shock; the strips thus tried, gave the same curves as those bent under the hammer with the condition just named.—*Engineering*.

* In large masses of iron and steel, tempering is also employed to prevent crystallization in the interior of the metal produced by slow cooling, especially when the pieces have been raised to a very high temperature.

BUSINESS ITEMS.

NEW JERSEY.

The Grant Works, Paterson, have finished about seven locomotives of their Russian order. None of them have actually been shipped to their destination, but they are loaded in cars at the depot and are being boxed and sent off from the works continually. All the machinery is packed carefully in boxes, and the tenders are sent separate. When this order is completed other similar work is expected to employ the works, so that there will probably be no stoppage. It is estimated that one of these locomotives when loaded with fuel and water ready for running weighs about eighty tons—a weight that would ruin any track that we have in America.

The Danforth Works are still busy, having received an order for three engines and eighty cars which will keep many hands in employ till winter at least.

An iron foundry is to be located at Red Bank, Monmouth county.

PENNSYLVANIA.

The Chester Rolling Mills are engaged on one lot of 1500 tons of iron plating for the shipyards of John Roach & Son, and have several smaller orders from New York and Philadelphia. These rolling mills are producing from sixteen to twenty tons per day, and their operations have a marked effect upon the prosperity of that neighborhood.

The steel works of Anderson & Woods, Pittsburgh, have only stopped for necessary repairs for over 10 years, and the last years's product was the largest since their commencement.

The works of the North America Smelting Company, Middletown, cover an area of 152 by 200 feet, and are four stories in hight. The specialties of their manufacture are Babbitt, type and stereotyped metals, tin and coppersmiths' solders, pig and brass, and composition castings.

The Warwick Iron Company are now roofing the casting, pump and engine houses of their new furnace at Pottstown, and will be ready in a few days to receive the engine. The boilers, six in number, which are 73 feet long and four feet in diameter, are now being set in position.

Ethelbert Watt's Furnace, near Marietta, has been blown in. The product, it is expected, will be about 500 tons of foundry iron per month.

Phœnix Roll Works, owned by James B. Young & Co., Pittsburgh, burned August 9. Loss reported to be $30,000; insurance, $20,000.

D. W. C. Carroll & Co., of the Fort Pitt Boiler and Iron Works, Pittsburgh, have just contracted to manufacture four large boilers and appurtenances for the United States government iron snag boat now being completed. They have also closed a contract to make six large homogenous steel boilers and other work for the Grand Lake Coal Company, of that city. Both contracts are to be completed by fall.

The new nut and bolt works of Messrs. McMurtry & Charles, Pittsburgh, are now in full operation, the product of their new improvements and patent machines coming fully up to all expectations, both in quality and quantity.

The Hazard Manufacturing Company, of Wilkesbarre, has just filled an order for two wire ropes, one 2000 and the other 1800 feet long. They were shipped to Virginia City, Nevada, this week, and are to be used for hoisting ore from a silver mine.

The new furnace at Lyons, on the East Penn Road, is finished, but there is some difficulty about the water supply. A new reservoir near by was to be filled by gravitation from springs on the hill one fourth to one-half miles away, but lest it should not be available or sufficient, a well is being sunk, which is already 97 feet deep. The furnace is owned by the East Penn Iron Company, in which prominent New York brokers have a considerable interest. John T. Noble, of Pottsville, is the contractor. Some difficulty having arisen, it is understood that he will at once turn over the furnace, with several houses erected for the employes, to the company, of which J. Selockter, of New York, is manager. The furnace is a very complete structure, and is said to have cost $180,000.—*Allentown Register.*

MASSACHUSETTS.

Page & Goodnow, of the Rollstone Foundry, in Fitchburg, are making castings for a planer to be put in the new shop of Brown & Co., engine builders, which is to weigh 25 tons. The bed is to be 40 feet long, and weigh 10 tons. When completed it will plane a surface 84 inches square. The Fitchburg Machine Company are the builders.

A new tack manufacturing company has been organized at Pittsfield. It is composed of eight stockholders, and has a paid-up cash capital of $30,000, which will be increased as business demands. The old Willis factory will be run for the present, but when the new machinery, which is now building, is finished the company will move into either the Kellogg or George Burbank's steam-power building. J. L. Peck is the president, George N. Dutton, clerk, agent and treasurer.

The Lowell Machine Shop now employs 700 hands, and expects to continue the employment of that number through the coming winter. It is now filling orders for full machinery for an 8000 spindle mill, at Rome, Ga.; a 6000 spindle mill, at Greenville, S. C., and a 4000 spindle mill in Western Mississippi.

The Fitchburg Machine Company are building an engine lathe to be forwarded to the Sandwich Islands, and also one for parties in Central Mexico. Both will be shipped *via* San Francisco, Cal.

The Hiscox File Manufacturing Company, West Chelmsford, are having their share of prosperity, running about 65 hands, and turning out 100 dozen files per day, beside other goods. This company moved from Lowell the 1st of June last, having bought the works of the Roby Manufacturing Company, comprising about ten acres of land with buildings. Stony Brook runs through the works, from which they enjoy a 50 horse water-power eight months in the year. Their list of goods includes hand and machine-cut files, rasps, machine, molding, veneering and other knives, the latter from English steel. The Douglas Ax Manufacturing Company, the principal concern of the village, are running their extensive works to nearly their full capacity, employing 300 hands, and turning off about 2000 axes and 1000 bevel tools daily. Their monthly pay roll amounts to between $15,000 and $20,000. They exhaust from 1200 to 1500 tons of iron, about 300 tons of steel, from 2000 to 2500 tons of coal, and upward of 1200 tons of grindstones a year.

CONNECTICUT.

The Ætna Nut Company, of Southington, has temporarily shut down its works.

The contracts for the mason work upon the Sharps's Rifle Company's new works, in Bridgeport, have already been awarded. The main building is to be 250 feet long by 40 wide, and four and a half stories high. The engine-house is to be 50 feet long by 25 wide; the boiler house 50 feet by 50 feet, and the annealing building 160 feet long by 40 wide. Of the three last buildings the walls are to be 18 feet high. All are to be built of brick and the roof to be covered with slate. It is estimated that 1,000,000 bricks and 400,000 feet of lumber will be used in the construction of these buildings. About 100 men will soon be engaged in their erection.

Phelps, Dodge & Co., of New York, have leased the factory at Shelton, and will begin the rolling of sheet zinc, an entirely new industry in this country, most of our sheet zinc coming from Belgium.

The Russell & Erwin Manufacturing Company have contracted for machinery and bought land on which to erect buildings for the manufacture of wood screws. The company will begin at once the erection of buildings along Lafayette Street and between High and Grove streets. The main building will be about 250 feet in length, 40 feet wide, and three stories high, with a capacity commensurate with immediate wants. The machinery is to be in readiness by February next.

VERMONT.

The foundation for a powerful hydraulic wheel press is being laid at the machine shops of the Central Vermont Railroad, at St. Albans. Heavy car, track, and tender wheels will be tested in this press. The pressure gauge is a novelty. It has a capacity of 12,000 pounds, and has a tell-tale attached to the hands of the gauge which will give the exact pressure on each pair of wheels pressed. A small lock is attached to the gauge, so that it cannot be disturbed by any of the employes until the foreman sees the exact pressure.

The buildings, machinery, fixtures, and patterns of the St. Albans foundery have been sold by J. G. & W. C. Smith to Edward A. Smith and John W. Newton, who have for several years been the lessees, under the name of the St. Albans Foundry Company, for $30,000.

MAINE.

The Portland Rolling Mills have put in new furnaces, and a new train of rolls for manufacturing bar iron, and have made their first lot of bar iron. They are also prepared to make round iron from three eighths to two inches by sixteenths, and flats from seven-eights to three inches by sixteenths.

OHIO.

The Cleveland Scale Company have added to their premises a three story brick building, 17 by 75 feet, to meet an increased demand for scale, safe, letter-press and similar works.

A knitting machine factory is to be established at Norwalk, Ohio, by the Curtiss Manufacturing Company, with $96,000 capital.

A steam riveting machine has been put into the boiler shops of the Fulton Iron Works, Cleveland.

The Canton Wrought Iron Bridge Co. have now under contract over $160,000 worth of wrought iron bridge work. The work done in this establishment ran over $400,000. They are now building a railroad bridge in Iowa, also one at Saginaw, with 200 feet swing and 160 feet truss.

The Johnstown, Pa., *Tribune*, says: The first furnace erected in this neighborhood was the Etna, which is located at Yellow Springs, Blair county, and was built in 1808, and the next the Springfield Furnace, in the same county, erected in 1815. Among others that were built many years ago we find the Franklin Furnace, in Blair county, erected in 1841; the two at Hollidaysburg, in 1855 and 1856; the Hopewell, at Hopewell, Bedford county, in 1800; the Pennsylvania, at Rock Spring, Huntingdon county, 1813, and the Sarah, at Sarah, Blair county, in 1824. The Cornwall Furnace, at Cornwall, Lebanon county, was erected in 1745, and the Mount Hope, in Lancaster county, in 1775. The Cornwall is still in blast, and has now reached the advanced age of 130 years. Its stack is 31x8 feet. Of the furnaces of the Cambria Iron Company here the four stacks were erected from 1852 to 1854, and the one at East Conemaugh in 1857.

The new furnace at Lyons, on the East Pennsylvania Railroad, is finished, but there is some difficulty about the water supply. A new reservoir near by was to be filled by gravitation from springs on the hill one-fourth to one-half mile away, but lest it should not be available or sufficient, a well is being sunk, which is already 97 feet deep. The furnace is owned by the East Pennsylvania Iron Company, in which prominent New York brokers have a considerable interest. John T. Noble, of Pottsville, is the contractor. Some difficulty having arisen, it is understood that he will at once turn over the furnace, with several houses erected for the employes, to the company, of which J. Selockter, of New York, is the manager. The furnace is a very complete structure, and is said to have cost $180,000.

GEORGE GUEUTAL & SON,

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IMPORTER OF

Wood Screws, Steel in Sheets,

BAND SAWS, TOOLS FOR BRAZING, &c.

Bed Screws, Pin Hinges, and Wire Nails a Specialty.

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MANUFACTURER OF

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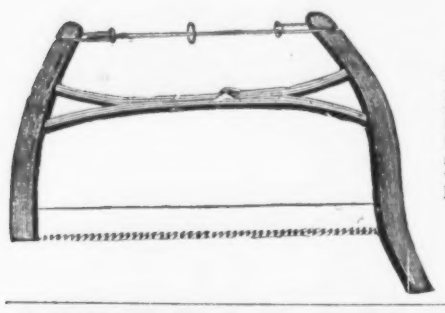

Elliptic Forked Saw Frame.

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The annexed engraving represents my ELLIPTIC FORKED SAW FRAME, which commends itself to the trade for its simplicity of construction. The Forked Brace being all in one piece, without any center bolt, secures for the Frame great strength and durability. These Frames are put up with my best Webs, marked "No. 40, Harvey W. Peace."

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Sole Proprietor & Manufacturer,
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And SOLID SAWS of all kinds. Trenton, N. J.

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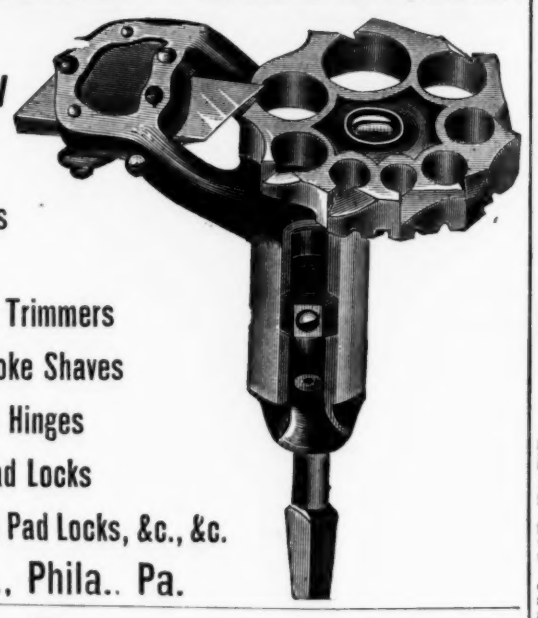

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SAWS

Of every description, including

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WOOD SAWS, Etc., Etc.

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Manufacturer of

Saws of all kinds.

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LIGHTNING SAWS.

Two Direct Cutting Edges, instead of one Scraping point.

Note extra steel and durability over the old **V**, outlined on **M** tooth.

Telegram Dated Oct. 1st, 1874.

STATE FAIR, EASTON, PA.

To HENRY DISSTON & SONS:

Philadelphia, Pa.

I want you to publicly test that challenge on Cross Cut Saws. Name time and place within thirty days. American Institute preferred. E. M. BOYNTON.

E. M. Boynton gave on Wednesday of last week an exhibition of what his Lightning Saw could do at the Pennsylvania State Fair, in which two men sawed through a sound oak log, 16 inches in diameter, in 17 seconds. Mr. Boynton informs us that his export trade is increasing, he having lately made large shipments of his saws to Australia and other distant markets.—*The Iron Age*, Oct. 8, 1874.

For fuller report of this exhibition see the *Easton Morning Dispatch* of Oct. 1st, 1874.

Henry Disston & Sons cannot furnish Lightning Saws. Why do they imitate mine?

Grain Scoops

AND

Back Strap Shovels,

WITH

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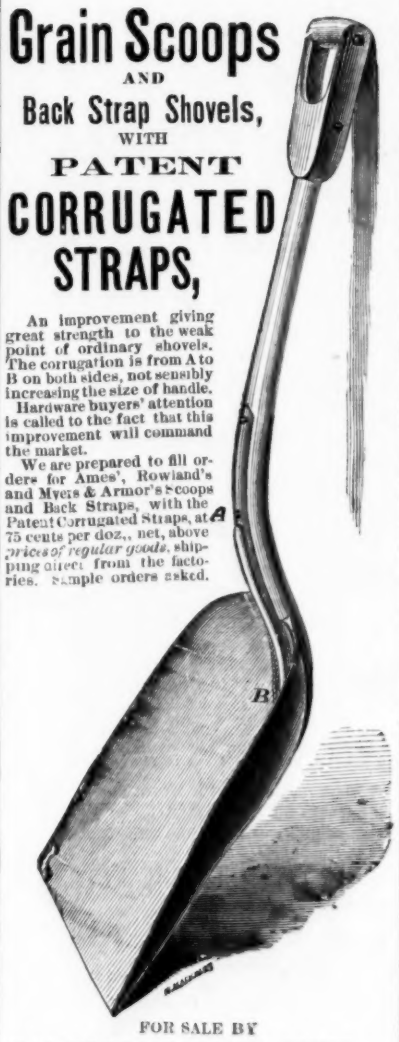
CORRUGATED STRAPS,

An improvement giving great strength to the weak point of ordinary shovels. The corrugation is from A to B on both sides, not sensibly increasing the size of handle.

Hardware buyers' attention is called to the fact that this improvement will command the market.

We are prepared to fill orders for Ames', Rowland's and Myers & Armor's Scoops and Back Straps, with the Patent Corrugated Straps, at 75 cents per doz., net, above *prices of regular goods*, shipping direct from the factories. Sample orders asked.



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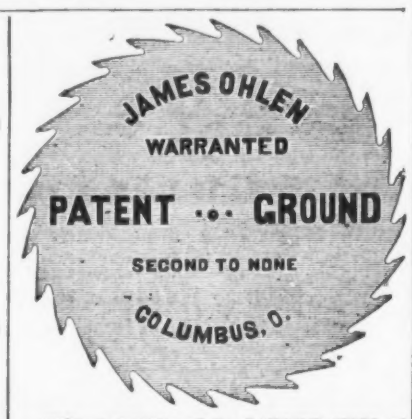

make a specialty of the LARGEST SIZES of **Circular Saws**, and call particular attention of lumber manufacturers to the following points of excellence:

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Properly Hammered.—Great care is taken that no saw shall leave my works without due attention in this important particular. A saw too tightly strained upon the rim, or too loose in the center, cannot be successfully run—hence the importance of so hammering the saw as to effect equal strain in all its parts, and at the same time RUN TRUE. This department is under the personal supervision of myself, who has devoted over *twenty years* to the art of saw making.

I am sole proprietor and manufacturer of the celebrated **"Challenge" Cross-Cut Saw.** Price Lists of all kinds of saws sent on application.

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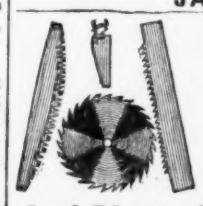

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JOHN MAXHEIMER,

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June 8, 1869; April 6, 1869; Dec 23, 1873; Jan. 20, 1874; Dec. 22, 1874.

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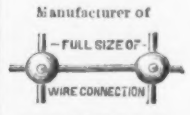

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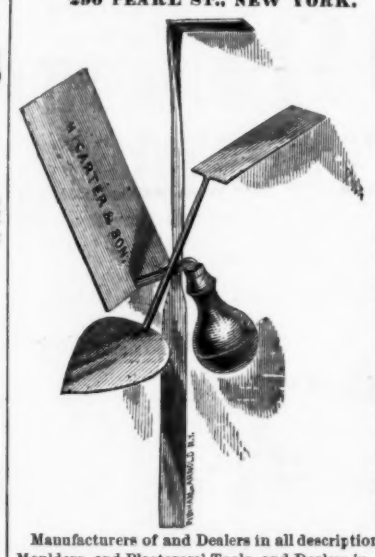

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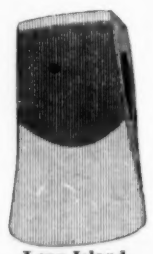

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PHILADELPHIA CORRESPONDENCE

PHILADELPHIA, Aug. 23, 1875.

With the approach of September, cooler weather and the return of absentees from country resorts, comes the usual prognostication of an improvement in trade, which as yet, however, does not show itself in actualities. All the reports relative to the crops, which are coming in, show that we will have an abundant harvest, for which there will be a good market both at home and abroad. The coal trade shows more activity, as the monthly increase in prices induces consumers to lay in winter stocks.

The iron trade is so thoroughly reviewed elsewhere in your columns as to scarcely need allusion to here. The most reliable reports, however, indicate that the business in the West is materially better than with the Eastern mills and furnaces, and that stocks of raw irons there are reduced to a minimum. While all the published reports here indicate that the supply of pig iron in Eastern markets is quite equal to the demand, it appears to be currently believed that the announcement is correct that the Philadelphia and Reading Coal and Iron Company will furnish all the raw material in coal, ore and flux to the furnaces on the line of the Reading Railroad, which are out of blast, and take the product of pig metal. It is said that these furnaces will accept the proposition and go into blast; but if so, and the reports as currently quoted as to trade are correct, what is the company to do with the pig metal? The product will represent not only a very considerable quantity of pig metal, but a corresponding proportion of material. Thus the furnaces in the counties on the line of the company's road and branches may be roughly estimated as follows, viz.:

	No. of stacks	Average weekly product. Tons.
Berks county	20	2,334
Chester county	3	550
Lebanon county	10	1,000
Montgomery county	18	2,140
Schuylkill county	8	965
	59	6,988

These are all anthracite stacks, and exclusive of at least two new ones building, if not more. In round numbers this product would represent, say, 7000 tons weekly, or 28,000 tons a month. To supply these furnaces with material will require—providing it is done by the Coal and Iron Company at two tons of coal, two tons of ore, and one-half ton of limestone to the ton of iron—14,000 tons of coal, 14,000 tons of ore, and 3500 tons of limestone weekly, or 56,000 tons of coal, 56,000 of ore and 14,000 tons of limestone monthly. The value of the coal at $3 would be $168,000, of the ore, which, as it is reckoned as a 50 per cent. ore, cannot be under $5, including freight $280,000, and of the limestone at $1, including freight $14,000, or for the raw material alone $462,000 per month, which, with $3 per ton for labor, $1 for interest on plant, &c., would give a total net cost at these figures of $574,000, or $25 per ton cost for the iron; to which add furnace owners' profit, which must be something, and cost to company of transporting product to market and selling same, and with present prices current, it is difficult to see where any money is to be made by the Coal and Iron Company out of the operation. True, the cost of ore may be slightly reduced, but not materially, and with that of coal includes some profit to the company, but these will be quite overbalanced by freight to market, cost of handling and interest. The furnace owner can have but a small profit, as the cost of manufacture comes so closely to quotable prices, and even reducing it $5 per ton would not leave any inducement, we should think, for both parties to engage in this attempt to make a market for coal. Moreover, it is questionable whether the Coal and Iron Company could furnish at once 60,000 tons of 50 per cent. ore monthly from any supplies they have opened, and certainly not to stock furnaces for the winter months after close of navigation, except at greater cost. To a practical view the plan seems visionary, but the Coal and Iron Company can generally carry out their undertakings, and if the furnace owners accede to the proposition, some one will see prices of pig metal at the mercy of this corporation, so far as our Eastern cities are concerned. A material change in the demand with an advance in price could alone make this a paying enterprise, and it is to be presumed that the president of the company is too good a business man to engage in a losing operation in iron, even to make a market for his coal and way freights for his line of railroad.

The tremendous peach crop which is now glutting the market has created an effort to transport the fruit in refrigerators on the steamers of the American Line, from this city to Liverpool. The first shipment goes by the Ohio, on Thursday, 26th inst. The preservation of the fruit is proposed by forcing air by fans over a mass of ice, so as to keep the temperature at 35° to 38°. No outside air being admitted, the same air is passed quickly through the fruit without moisture, and with less consumption of ice than in any other process. The gases from the fruit are drawn to the ice, and thus the fruit can, it is said, be kept for weeks in the best possible condition. The shortness of the fruit season would seem to be the only drawback to a large trade in this line.

The wonderful growth of Philadelphia in dwelling houses has lately attracted great attention, and from the publication of statistics on this point it appears that during the last twelve years *a house has been erected for every working hour of that period.* The total number of buildings in this city is over 150,000, of which 130,000 are single private dwellings. Comparisons show that New York has 60,000 less, while we have 100,000 more dwellings than Cincinnati; 94,000 more than Boston; 83,000 more than Baltimore; 84,000 more than St. Louis; 79,000 more than Chicago; 78,000 more than Brooklyn, and have built more during the last ten years than some of the prominent cities contain altogether. In 1863 the total number of dwellings built was 2465, and in 1874, 4310, or a total for the period of 42,033. Since January, 1875, nearly 3000 additional dwellings have been built, while all this increase is exclusive of the great number of stores, factories, school and public buildings, of which there were 60,000 erected in the twelve years enumerated. Verily this city bids fair to surpass in magnitude any other on the Continent.

An especially fine work of art in bronze has just been received from Munich by the Fairmount Park Art Association. This is a group of animal figures entitled the "Dying Lioness," and duplicated from a group owned by the Emperor of Germany. It was cast by Von Muller, of Munich, who exhibited it at the Art Union of that city where it received the highest commendation. So great is the size and weight that no freight car could hold it, and it was transported to Antwerp in a special open car, and shipped thence on the Nederland to this port.

The new clipper ship Centennial cleared from this port for San Francisco last week with a cargo valued at over $100,000, and will be followed by another first call ship with a steady demand for a regular line. Iron ship building continues active. The large iron steamer John W. Thompson, launched lately at Wood, Dialogue & Co.'s yard, at Kaighn's Point, will shortly be ready for her trial. Another large iron steamer, to be called the North America, will be launched in a few weeks, while work is busy on several new tugs, ferry boats, etc.

Chester is rapidly extending its list of manfactures, among which is a new works of great size called the Eddystone Print Works, the grounds of which comprise 500 acres on the River Trent. This concern has erected within a year 8 mills, 50 dwelling houses, a dock 1200 feet long and 90 wide, etc. But a portion of the works is running, employing 300 hands, and turning out 45,000 yards of prints daily. A large industrial population is centering at Chester; the new rolling mill is completed, and a blast furnace projected, all promising solid prosperity.

Our Latest Type of Ocean Architecture.

A year or more since it became a subject of anxious inquiry among the commercial journals of New York what should be done with the immense fleet of large schooners, all new and staunch, built since the war and supposed to have been intended chiefly for the coasting trade, which is a domestic monopoly, but grown too vast for that business, and gradually superseded in it by the multitude of steamers and the enormous competition of the railroads. As these schooners ranged from 300 tons to 1000, the inquiry seemed to us a natural one, as we could see the accumulation in our own port, and knew it must be great at the North and East. We then said that as these schooners made the voyage to the Canadian provinces, the West Indies, the Bahamas and the Spanish Main, we could see no good reason why they should not cross the Atlantic, as the vessels in which were made the early discoveries in the New World were very insignificant craft. On inquiry at that time in commercial quarters we were informed that the schooners were to some extent engaged in the European trade.

Since then the change has increased gradually, until at the present day we are able to claim that the three-masted schooner is the new type of American sea going enterprise. These vessels are all new, well built, and good sailers, and much better fitted to carry an ocean cargo than the 2654 old British hulks denounced formally by Mr. Plimsoll in his written protest in the House of Commons. The amount of canvas carried by the larger class of these noble schooners would seem dangerous with such a rig at sea, but the size of the vessels and the weight of the cargo justifies the risk, and though a square-rigged clipper ship under full sail is a noble sight, we doubt whether it is any safer than the larger class of terns, the latest build being specially adapted for sea-going. To Philadelphia, where there are some 3000 vessels owned, this is a very important question, as a majority of them are schooners, and the larger class of them increases constantly. Let them be fully established in the ocean traffic to and from this port, and the shipment of grain, petroleum and other domestic products will pass from the old foreign hulks that swarm in all the northern ports, to a newer, better and more seaworthy as well as a faster class of vessels.

In that event, which we do not now regard as at all problematical, we should hasten the transfer of the coasting trade to steamers and canal boats and railroads, because we should have ample employment for the great fleet of large three-masted schooners crowding all the leading Northern ports. The prejudices of the old salts are, of course, all in favor of square rigged craft for ocean service. But the schooner rig was adopted on the steamships of the American line, and on most of the coasting steamships also, and the tonnage of a first-class tern taken in connection with her staunch build, newness, and the splendid spread of canvas she carries, would make the heart of a sailor dance as he sees her outstripping many an old square rigged hulk. That our readers may fully recognize the importance of the change, we may state that we have traced these terns to the ports of England, France, Italy, South America, the West Indies, the Bahamas, the Spanish Main, the Gulf and the Canadian maritime provinces. It is thus clear that they have made the sweep of almost the whole North Atlantic and part of the South Atlantic. We are not certain of their being in the Pacific trade, though we think they have rounded both the southern continents, and it is a matter of easy calculation that if they become established firmly in the petroleum trade they will go everywhere.

We do not undertake to decide as to the sailing qualities and seagoing capacity of square rigged and schooner rigged vessels. We speak only of facts that we have watched and gathered up, as showing the drift of the commercial current. Such a dismal chorus has gone up for ten or twelve years past over the decline of our ocean marine that we deem it our duty to encourage any and every effort at recuperation, whether the tonnage be of iron or wood, steam or sail, large or small, schooner or square rigged. The important point is that our flag shall be restored to its former place and prestige. We should be glad and proud to see once again the noble fleet of American square rigged clipper ships skimming every sea and outstripping all rivals in their speed. But in their absence many branches of trade have been lost to us and have been transferred to foreign hulls, and the everlasting croak about the cheapness of English and continental ships and the dearness of our own operates as a constant and heavy drag upon the building and employment of a new clipper fleet. The terns we have in almost unlimited numbers, and no ship that ever floated can be more of a clipper than most of these magnificent schooners. We do not know how their sea voyages will average in point of safety as compared with steamers and square rigged vessels, but we imagine that they must stand pretty well with the underwriters or they would not multiply so fast. The coal and sugar trades were the basis upon which the fleet built up its prestige, but it has now passed beyond those lines and is rising in the favor of the mercantile service as the latest type of American naval architecture. If these terns succeed in making their way into the ocean traffic permanently, the American tonnage will again challenge the magnitude of the English.—*Phila. North American.*

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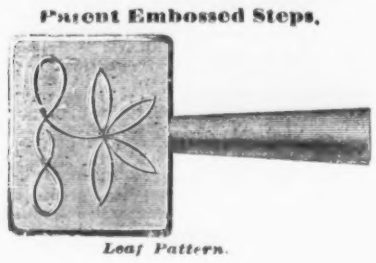
Patent Embossed Steps.



Leaf Pattern.

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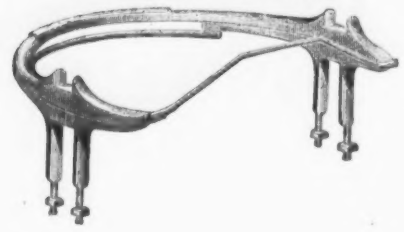
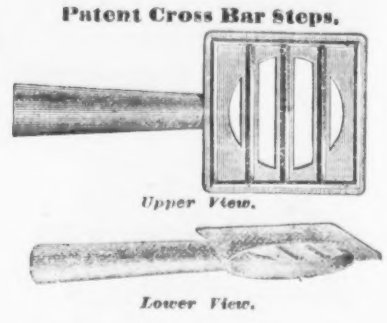
Established 1850.

No. 6 Fifth Wheels.



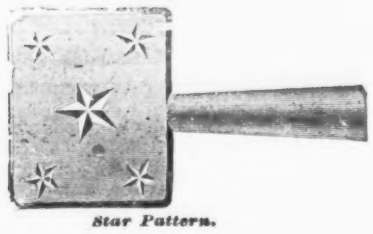
1871 Pattern Shaft Couplings.

Patent Cross Bar Steps.



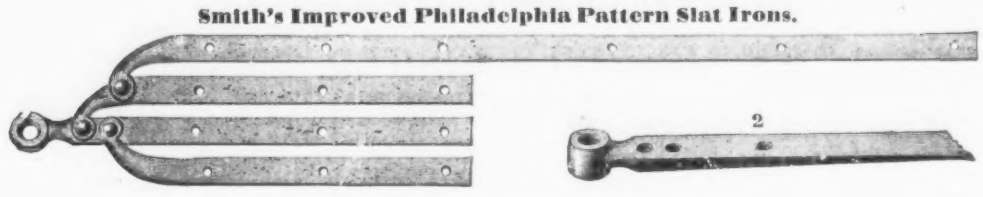
Upper View.

Lower View.

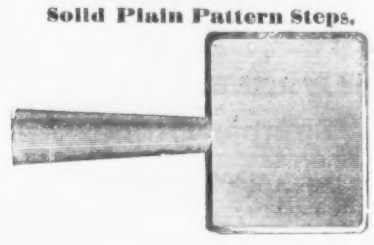


Star Pattern.

Smith's Improved Philadelphia Pattern Slat Irons.



Solid Plain Pattern Steps.



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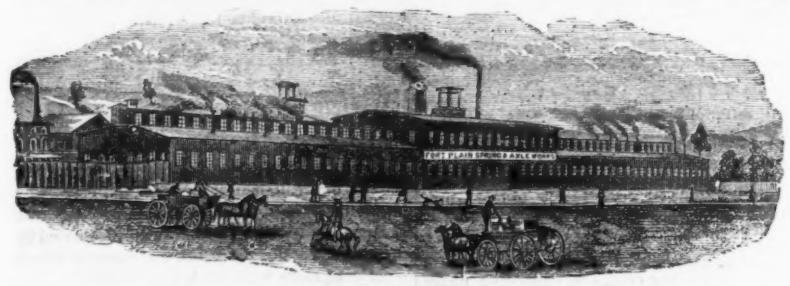

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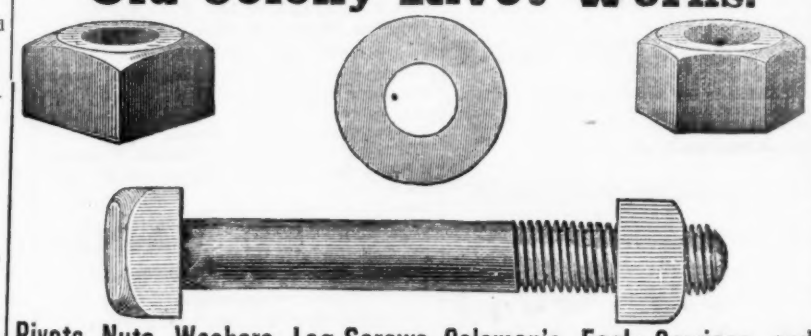

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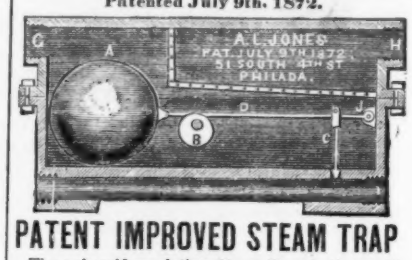

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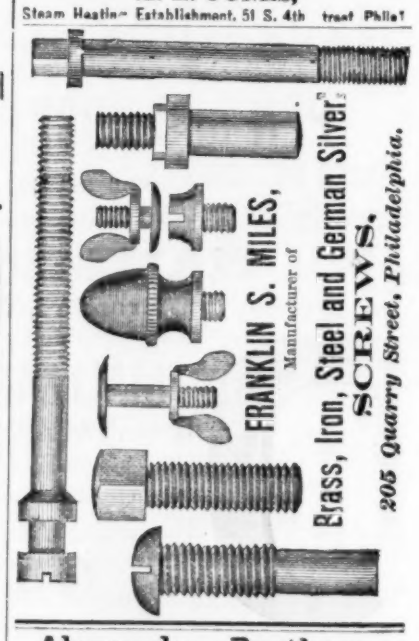

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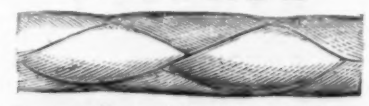

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The Iron Age.

New York, Thursday, August 26, 1875.

DAVID WILLIAMS - *Publisher and Proprietor.*
JAMES C. BAYLES - *Editor.*
JOHN S. KING - - *Business Manager.*

NEW YORK, January 2, 1875.

Until the 1st instant the postage on newspapers was paid by subscribers at the office where the paper was received, the yearly rates on the different editions of *The Iron Age* being as follows: Weekly, 40 cents; Semi-Monthly, 40 cents; Monthly, 24 cents.

Under the provisions of the new postal law, which went into effect on the 1st instant, prepayment at the office of mailing is required, at the rate of two cents per pound for the Weekly, and three cents per pound for the Semi-Monthly and Monthly, which will make the postage as follows on the different editions: Weekly, 50 cents; Semi-Monthly, 30 cents; Monthly, 15 cents.

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Iron Ships.

The public interest in the better protection of life and property at sea, growing out of Mr. Plimsoll's efforts to secure the enactment of a code of laws for the government of British ship owners, promises to bear valuable fruit in raising the standard of quality in British ships, During the past few years there has been a noticeable decline in the quality of both materials used in and the workmanship upon ships built in British waters. Cheapness has been a prime consideration, and the competition between builders on the one hand and shippers on the other has led to the construction of ships that were very cheap as regards price, but utterly unseaworthy as regards quality. This is admitted by the best authorities on naval construction, and the language publicly employed by members of the British Institute of Architects in condemning the practices of the shipwrights is far more severe than any foreign critic would dare to use. For example, at a meeting of the Institute about two years ago, Mr. Rundell said: "If I am informed rightly, the iron at "present used for ship building is really "getting by degrees worse and worse. "Why it is I do not know, and it would "not be fair, perhaps, to ask a ship "builder any question on that subject, "because it is one in which he is only in"terested in a secondary manner. It has "been my fortune for many years to see "not only new ships which have been "built, but wrecked vessels, and I have "seen some wrecked iron vessels that "you would fancy were built of "glass instead of iron. They were broken "in such a manner that they more "resembled plates of glass than plates of "iron. Perhaps in a ship at sea it does not "matter very much whether she is built of "this very good iron, or very inferior iron, "and you say, if she gets on shore she has "no business there. She was not built to "be in shore but to be at sea, and as long "as she is at sea it is very little conse"quence whether she has the cheap and "brittle iron, or the expensive and more "malleable material that was at first used. "Of course, this would lead to distinctions "between boiler plates and boat plates of "different qualities. These qualities, as I "said before, are generally deteriorated." In the discussion which followed other members said substantially the same thing. One member, Mr. Luke said: "I quite "understand what Mr. Rundell means by "glass plates. I have seen plates which, "if you let them fall, would break like "glass. Superior iron plates, when frac"tured, star like bad and brittle armor "plates when fired at. With reference to "the quality of the iron, it can be made "now quite as good as it was previously. "We are getting iron at the Admiralty as "good as it was ever made, and perhaps "better. Iron can be made now for mer"chant ships just as good as it was when "the Richard Cobden was built, if the price "is paid for it. It is simply a question of "price. There is so much competition now "in the mercantile shipping world, that a "ship builder can scarcely live if he is "obliged to put in the iron which he "knows, in his own conscience, should be "put into a ship. The ship owner goes to "the cheapest market, and then de"pends upon insurance. If the ship is "lost the insurance will pay him for it."

It may be assumed that, with such materials, good workmanship is impossible in any case. But it may be questioned whether the average British ship builder has not yet a great deal to learn about the proper methods of ship construction, even with good materials to work with. There is probably no country of the world where, as a science, naval architecture is better understood, and probably no country in which it is practiced with less regard to the condition of safety. From the appearance of most of the British ships we have seen, especially those built during the past six or eight years, we should say that the question of cheapness was the only one that had any weight with either builders or owners. As a consequence, old iron ships are very undesirable property. When strained, weakened by corrosion, or superseded in style by newer and better models with improved engines, they are unprofitable possessions, and must be disposed of on the best terms possible. The usual method is to "sell them to the underwriters" in the manner described in the following paragraph, which we take from *The Engineer:*

It was a wholly unlooked-for result of the introduction of iron shipping, that a worn-out ship should prove really worth nothing. A timber-built ship, at the worst, would generally pay for breaking up for the sake of the still usable materials of her hull; but not so an iron ship. When no longer profitable to repair, the cost of breaking up and remanufacturing the iron of the hull is more than the iron is worth. There is but one profitable way to dispose of her. Vamp her up as having undergone a "thorough repair," send her to sea heavily insured, and let her go to the bottom as quietly, and with as little loss of life, it may be, as circumstances will permit: but to let her be insured and sunk is the only way to realize anything out of her.

The outrageous "scamping" practiced by British shipbuilders and ship owners, of which we have given some examples in the above extracts, have tended to bring iron ships into dispute. When the iron shipbuilding industry was making its most rapid progress, a few years ago, the demand for wooden ships practically ceased, and the industry of building them was almost destroyed. Some of these early iron ships had famous records. One of them—the Great Britain, built by Sir I. K. Brunell—lay pounding on the Irish coast for six months, exposed to the surf of the Atlantic almost without protection, and after passing through an ordeal to which few vessels were ever subjected, she came off in the spring following her stranding, with no injury to the hull which could not be repaired without heavy expense. Her engines were most damaged, but had she been a sailing vessel, it is probable that she would not have been able to sail to the nearest shipyard for repairs. We know of another iron ship—a sailing vessel—which pounded on a coral reef in the Indian Ocean for several days, but was finally floated off, and continued her voyage to England. When dry-docked for repairs, it was found that she had sustained no further damage than the bending of some of her bottom plates, which were taken out, re-rolled and replaced. Other cases might be mentioned showing the extraordinary strength of the earlier iron ships; but the steady deterioration in the quality of the materials and workmanship, resulting in the production of vessels so bad that they might be said to be of cinder iron, tended to revive wooden shipbuilding. Wooden ships have acquired a new value, and are regarded by shippers with something of the favor of former years. Were there no difference in cost, wooden ships would now generally be preferred to iron by both owners and shippers.

If the character of iron bottoms is ever to be restored to what it was in the days when ship plates were made of boiler iron, the ship builders of this country must do it. We are just now in a position to profit to the fullest extent by the disrepute into which British ship builders have fallen. We cannot—and, more than that, we do not want to—build iron ships as cheap as they can be built in British waters, provided in doing so we have to build them of British quality; but we can and do build them a great deal better, and if we continue to do so we shall build ships for the world before many years. The heavy losses of the marine underwriters will presently cure the evil which makes the owning of such ships profitable, and when the insurance companies refuse all extra hazardous risks, and write on nothing in the shape of a vessel which does not bear the test of rigid and intelligent inspection, ship owners will have to go where they can get the best ships, instead of the cheapest. The quality of American iron is peculiarly adapted to ship construction. It is tough, ductile and strong, having an average tensile strength of 50,000 to 65,000 pounds to the square inch, as compared with the British average standard of 48,000 to 51,000 pounds.

In the building of marine engines we are somewhat behind British engineers, but we are every day learning from British experience; and some of the engines, simple and compound, lately built in this country, have received high commendation from English sources. Our engineers are eminently conservative, and while they do not venture the costly experiments and experience the costly failures which characterize English engineering practice, they quickly profit by anything learned abroad, and have made not a few valuable contributions to progress in this direction. Our shipbuilders are making a substantial reputation for good work, and, if they value this more than large profit, and will continue building good ships at fair prices, it will not take them many years to build up a substantial competition with the shipwrights of Great Britain. The day of "cheap iron ships" is nearly over, and the reaction which has already begun in England will ultimately create a demand for better iron ships than can be had of English builders at a price which would give them any advantage over American builders in competing for foreign orders.

Taste in Industrial Art.

One of the demands of the age is for useful articles which are also beautiful. It is no longer possible to dispose of works like those of the last generation, which on the score of utility were good enough, but were at the same time frightfully ugly. Even the ornamentation seemed a hideous nightmare. To-day the best taste seeks an article perfectly adapted in form and construction to the material and the use, and then appropriately ornamented. Beauty is becoming an important element of commercial valuation. Several lines of goods are to-day monopolized by England and France because they have the workmen who can produce work not only good but beautiful. Decoration has an important part to play in the processes of manufacture, and each year it becomes greater. People ask for artistic work, and where it is to be found are ready to pay for it; and the value is in proportion to the beauty of design and general art value. This fact being generally recognised in this country, the manufacturers are constantly attempting to make goods "attractive," as they term it, by which they generally mean the addition of ornamentation either to the article or the package. Too frequently the practical man, understanding his trade and its details perfectly, and thinking that the goods must be improved in appearance, undertakes to make ornamental designs. Self-confidence carries him through, together with the advice of some friend and a talk with the local artist. The effort is good, commendable, but, except in the rarest cases, is a failure. The man is, of course, disappointed; the work does not sell as much better when ornamented as was expected, and in many cases the manufacturer sorrowfully returns to a plain style, saying that art does not pay in his line of business. The manufacturer began in good faith to improve his goods, and he brought to bear upon their art aspect the same kind of talent by which he had succeeded in inventing, trusting with Yankee assurance that his inventive ability and business tact would be as successful in the one case as the other. Naturally, he fails, but does not understand why. The trouble is, true art is no more to be comprehended by a few weeks of study and an application of one's ingenuity, than is the national literature of a country to whose language one is a stranger. Even "taste" in art is not a thing that is born in a man. Art education is needed to enable our manufacturers to compete with those of other nations. Third rate artisans from Europe come over here, and by reason of a slight art training obtained in the schools, are able to step into the designing departments of our shops, and practically take control of them. Even in what we boast of as art work in the matter of silver and gold, the American manufacturer too often goes abroad for his ideas. Surely, with unrivaled skill of hand, we are to expect good things in such a case; but here again comes in the lack of art education. Our workmen, incapable of originating a good thing, are also incapable of knowing or recognizing the best art when they see it, and so our good workmen copy inferior things from abroad when the best are equally accessible. England recognized the need of art instruction as long ago as 1851, and set herself about the work of giving her manufacturers workmen who understood art. In this country the same thing is needed to a much greater degree than it was in England, for at that time she had but two rivals, while we to-day must fight against three, at least, who are twenty years or more in advance of us in artistic development. Some of our large cities are making advances in the right direction. Boston has an industrial art school; so has New York; but we fear that in this city it is more artistic than industrial, and the practical side is put too much in the back ground. Cincinnati has an industrial school whose influence is manifested in a variety of ways. Her manufacturers are decidedly benefited by it. Milwaukee, also, has an industrial art school, and from the report of the citizens' committee, which is before us, we judge that the results are of the most satisfactory character. We cannot refrain from quoting one or two passages, which put in a very clear manner the chief advantages to be obtained from these schools:

"The introduction of industrial drawing into England was the result of an effort to improve the character of English manufactures as compared with those of surrounding nations. The manufacturers of New England were actuated by a similar motive. If the movement were confined to our own section alone, it would be too sanguine to expect from it any extraordinary results. But, beginning in Massachusetts, it is spreading throughout the country, and Milwaukee is but keeping peace with other localities. The skill which is now being acquired must be felt in a few years very sensibly. It will be felt in our iron works, boiler and machine shops, and factories of every kind. It will show in the fronts of our buildings, and in all the furniture and utensils with which they are provided.

There are scarcely any objects manufactured in the United States free from some trace of ornament, but almost all of them are admitted to be homely. It is present on stoves and crockery, on door bells and door mats, on walking sticks, pen holders and thimbles. It is ugly because beautiful combinations cannot be hit upon at random, and most of this is designed without knowledge. It is expensive also, because there are few persons who can make even these abortive attempts at design. Every architect knows that contractors add something to their estimates for any design that is at all out of the common, although the actual amount of work upon it may be less than upon the stereotyped patterns. A slavery to common place routine is thus enforced. Increased ability to design and to understand design will make beautiful forms as common, as ugly ones now are. No detail of the ordinary surroundings of life is too humble for the manifestation of industrial art. It is essentially the poor man's art, since it aims, by beautifying common objects, to bring within his reach a range of pleasures which have been hitherto reserved for the wealthy.

In conclusion the committee give the following resume of the objects to be attained by industrial art:

"The objects sought to be obtained by industrial art cannot justly be thought of little account, even in comparison with what are admitted to be the important interests of life. If it can be made possible to derive actual pleasure, instead of a sentiment of indifferent toleration from contemplation of the wall-paper and carpet, the chairs, sofas and foot-stools of one's apartment, from the bedstead on which he sleeps, the table at which he dines, the form and ornament of his plate, his cup, his knife, fork and spoon—silver or pewter as the case may be, for there is little or no necessary connection between beauty of design and rich material—or again from office desks and counters, book-rack, safe, ink stands and gas fixtures, would not the sum of this reduplication of impressions surpass almost any and every other interest. The objection offered by certain persons that they have lived well enough without such fantastic refinements, and do not see the need of them, is as illogical as it is ungracious. Such is the rate of transition and progress in American life that one improvement is constantly treading upon the heels of another. That certain things have not been had in the past can never be an argument for maintaining that they will not be needed in the future, until it is settled that universal perfection has been arrived at, and this we think the most self-satisfied among us are still very far from asserting."

While the last remark is true, we must not look upon America as the sole market in which we are to dispose of our goods. In a comparatively short time American manufactures must enter foreign markets and come into competition with foreign manufactures, if they would thrive. Of home manufactures we have no fears when the simple matter of utility is to be considered. In that they will be without rivals, but foreign goods will be incomparably ahead of them the moment that decoration is attempted. Further on in the report we have the following:

It may be asked how, if the results briefly indicated above be admitted to be desirable, the teaching of drawing in the public schools is to secure them. It will do so by the education of the artistic sense of the community. As in the study of literary composition the scholar is taught to appreciate beautiful figures of speech or a simple and pure style of expression as contrasted with a bombastic one, so that in his future range of reading he is prepared to admire the one and discountenance the other, so in the study of art he learns the virtues and vices that may be manifested in straight lines and curves, light and shade and colors. And just as although he may never be called upon to write or compose to any extent himself, he will appreciate in other writers the characteristics which he knows to be good, and thus aid in making them prevail; so although he may never have to design either houses or furniture or frescoes, when he comes to need them or when his critical opinion is desired he will commend such as are good and repudiate those which are without merit. It is necessary to furnish an audience as well as performers, and the more critical and accomplished it is, the better the style of work which will be insured.

The gist of all this is that, as a nation, we must study drawing. Instruction in drawing is elementary art instruction, and this we must have. The subject is one that has a great practical interest for our readers, and while we do not now give it that exact practical application that it admits of, we hope to do so in the future, and point out its bearing in connection with sheet metal work, ornamental and light founding, plated work, and many other branches especially dependent upon decorative talent for their success.

During the past few years Belgium has taken a very prominent place among the iron producing countries of the world. Her manufacturers, ambitious of the profits and honors af a large foreign trade—to which the ironmasters of this country are still somewhat indifferent—have pushed their way into the English market and taken a great deal of business away from the British ironmasters. They are now sending their agents into Germany, and thus far their efforts to get German orders have been attended with considerable success. High wages have paralized the German iron trade as well as the English, and the German ironmasters are now talking of importing French workingmen and buying French iron to be worked up in their mills and foundries. French agents are also underbidding the German manufacturers in their own markets, and, as the result of the French and Belgian competition, the market is well supplied below the prices at which iron can be manufactured at home. Fortunately, our own market is now practically free from foreign competition, as regards iron and the heavier articles made from it. Were it otherwise, we should be better able than now to sympathise with the English and German ironmasters, whose complaints are just now very loud.

The War Demand for Copper in Europe.

The adoption of "phosphor bronze," on the Continent, for the casting of field pieces, in the place of steel cannon, promises to constitute quite an item in the consumption of copper, which is the main component part of this alloy. But the transformation of the artillery of modern Europe is a gigantic task; it requires years and necessitates a heavy outlay. Although the Austrians were the inventors of the new composition, and first practically introduced the phosphor-bronze gun about a year ago, they have been slow in substituting the same for the steel. They did not feel themselves prompted by a pressing necessity, such as we witness in Germany, where the large indemnity of a thousand million dollars has been pretty much absorbed by military expenditure within the short space of four years, merely to be prepared for the next great clash of arms. Nor did they feel impelled to display the energy which rules the action of the war authorities in France, whose reorganization of the army will enable them to place into the field, fully equipped, 2,500,000 men two years hence.

Copper is also required for cartridges, and for the innumerable articles made of brass which adorn the accoutrements of the European soldier, and the amounts thus withdrawn from the ordinary industrial uses, and permanently locked up,

are much greater than we are inclined to think at the first glance. A year ago, when Germany and France bought extensively for these purposes, the important bearing of these increased requirements became strikingly evident. General trade in metals was as dull as could be, especially in copper, yet in spite of liberal arrivals from the West Coast and from here, the stock on hand in England and France declined from 27,762 tons on the first of August to 20,572 tons on the 1st of December. Four months sufficed to raise the value of Chili bars from £76 to £87, an advance of thirteen per cent.

Since then there seems to have been a lull in the trade for army purposes, and as trade was not brisk, the deliveries during the first seven months of the current year were but 36,629 tons, against 38,678 in 1874. During the first week of August, however, the French government bought some 3000 tons of Australian copper. Since then the London market has improved from £79 for Chili Bars to £83, an advance of nearly 5 per cent.

STOCKS OF COPPER IN ENGLAND AND FRANCE.

1874.	Price.	Stock on hand.
August 1	£76 00	...Tons 27,762
September 1	78 00	 26,852
October 1	61 00	 24,035
November 1	84 00	 21,957
December 1	87 00	 20,572
1875.		
January 1	83 00	 20,668
February 1	83 00	 21,008
March 1	82 00	 20,990
April 1	80 00	 23,365
May 1	83 00	 23,514
June 1	83 00	 23,530
July 1	82 00	 23,784
August 1	79 00	 22,828

The foregoing shows that, notwithstanding the liberal shipments from Chili of 24,763 tons from January 1 to July 17, against 22,115 in 1874, stocks have at no time during the twelve months under review returned to the figure of a year ago.

Purchases for German and French government account may now fall off, but Austria being backward, and other military countries likely to come in for a share, it is probable that the extra demand will be kept up. Although the amounts thus withdrawn may not equal in extent the previous takings to supply more important and urgent requirements, they will constitute an item which we must not lose sight of, if we desire to judge correctly the influences at work in the European and American copper markets.

Speculative purchases for a rise of copper, on the spot and afloat, which were formerly frequent in London, have been conducted of late on a very small scale, owing to a general distrust occasioned by recent failures in the metal trades. The war demand has, therefore, become an element all the more important, and has, in fact, proved the only one which could have prevented copper on the other side from declining to where it stood a year ago, despite the reduced stock.

Although these influences may not operate on our own market for the time being, they cannot fail to strengthen the metal. It is now clearly perceptible that the nature of European requirements will at all times insure a ready market for any copper we may have to spare.

There seems to be in London just now a decided distrust of all speculative American investments, and, with the exception of government bonds, American securities are not popular. We are not surprised at this. England has furnished the capital to float all manner of wild cat schemes; and while many legitimate enterprises have gone begging, there has been little difficulty in selling worthless stock, and borrowing money on mortgages of companies with no prospect of paying interest, when specious adventurers have undertaken the task of negotiating them. As a consequence, there is a great amount of American securities held in Great Britain which might be had very cheap, and just now investors are inclined to give preference to the claims of French schemes of all kinds. France is now passing through an era of rapid progress very similar to that through which our country passed during the ten years succeeding the war, and with every prospect of ending as ours did. It is not probable that English capitalists will be as easily plucked by swindlers as formerly, but we think it likely that a good deal of English capital will seek legitimate investment in valuable property or well conducted undertakings on this side of the Atlantic. Mr. Bell's report upon the coal and iron resources of the United States will strengthen the confidence of those who hold coal and iron lands in this country, and the capitalists who will visit the Centennial will undoubtedly travel more or less over the Continent, thereby acquiring larger and more correct views of this country, and discovering many opportunities of investment safe and profitable enough to satisfy the most conservative. We are sorry for those who have been beguiled into making "permanent investments" in worthless American securities, which could not have been sold at home for 10 cents on the dollar; but we assure our English friends that there are almost unlimited opportunities for safe and profitable ventures in this country, and we think they will reach the same conclusion if they will come here and see what we are doing.

The Springfield *Republican* says: Evidently the State has not heard the last of the "demoralized rock," which, in the earlier days of the Hoosac tunnel, proved such a fatal obstacle to the penetration of the west side of the mountain, and which has been urged as a serious obstacle against the present operation of the bore. About six hundred yards, or twelve hundred tons, of this rock fell from the roof of the tunnel, near section 10,003, at 10 o'clock Friday night. The rock was dry and soft, and supported by heavy timbers, put in by Walter Shanly; and if the fall was not directly occasioned, it was undoubtedly hastened by excavations made, about three weeks ago, preparatory to the arching. There is now, to mark the fall, an ugly, jagged hole remaining fifty-three feet above the track, and fifty feet long by thirty wide. The concussion was fearful; the miners say it seemed as if the old mountain itself was crumbling upon their heads. Dinner pails and mining implements were crushed to atoms, but happily no person was injured. The track was covered to a height of fifteen feet and all the men that could be used have since been at work, day and night, removing the rock, so that the track is cleared; freight trains came through last night, and passenger cars will be running to-day. The rock in the immediate vicinity of the break appears to be firm; yet this portion of the tunnel has long been considered the most dangerous. No blame can be attached to those in charge, as the rock was apparently properly supported, and the defect seems to have been in the rock, and not in the way it was sustained. Measures will immediately be taken to support any other demoralized rock, if any be discovered. The miners and foreman, meantime, seem to have little fear of another fall.

A Chemical Study of the Puddling Process.

Dr. Julius Kollmann, of Oberhausen, has been carefully studying the slags and samples of iron taken at different stages of the process from a furnace in Upper Schlessia, working on granular iron.

During the night shift preceding the testing, six charges were made, and in the morning two more charges of the gray cast iron, without the addition of any turnings or smelted iron, so that the slag alone would have the constitution corresponding to the working of the iron to be tested. The experimental charge was made near the middle of the day shift, because at that time the furnace was running at its normal rate. The material introduced was a light gray, fine grained and tolerably homogeneous cast iron, which was blown from brown hematite, with one half coke and one-half raw coal. The details of the sample charge and the furnace employed are described in full in Kollman's dissertation. The product was a coarse grained iron for wire. The loss of iron in puddling could not be determined with accuracy from the test charge, on account of the samples taken out. As calculated from the preceding and following charges it was 18·4 per cent., so that one must put in 122½ lbs. of cast iron to obtain 100 lbs. of wire iron when finished, and with a reheating furnace, 130 lbs.

EXAMINATION OF THE SLAG.

It is very essential that both oxides of iron, the protoxide, FeO, and the sesquioxide, Fe_2O_3, should be present in the puddle slag, because the carbon of the cast iron reduces the latter to the former. It can be proved that the slag contains protoxide of iron, because when finely pulverized and heated in the air, it gains in weight from the oxidation of protoxide and sesquioxide. This oxidation of protoxide of iron will, of course, take place in the heat of the puddling furnace when air enters, and in this way the slag, which is the oxygen carrier, becomes better adapted to burn out the carbon from the cast iron. In consequence of the continual oxidation of the carbon, the relative quantity of the two oxides of iron in the slag must change in the course of the puddling. It is especially important to test the slag for sesquioxide of iron, because the whole process of the oxidation of the carbon in cast iron depends entirely on the presence of sesquioxide of iron.

The puddle slag contains some metallic iron, as may be seen on pulverizing some of it in a mortar, when the little spangles of iron can be distinctly recognized by the metallic lustre, and may be picked out. The admixture of metallic iron, especially after picking out the larger grains, is so small that, in calculating the analysis, it may reasonably be neglected. The author found that, on treating the finely pulverized slag with a solution of blue vitriol, which dissolves the iron while precipitating the copper, that one specimen called No. 1 contained 0·059 per cent. of metallic iron, and No 2 contained 0·185 per cent.

The samples of slag were taken from the furnace by the aid of an iron spoon covered with lime and fastened to a long handle. The following samples were taken:

I. Sample of slag taken at 10·43 a. m. from the hearth, after thorough stirring and after the last bloom from the previous charge was taken out.

II. Sample of slag taken at 11·17, when the pig iron was all melted.

III. Sample of slag above the metal, taken at 11·27.

IV. Sample of slag taken at 11·35.

V. Sample of slag taken at 11·38.

VI. Sample of slag taken at 11·46, at the beginning of the conversion.

VII. Sample of slag at 12·14 p. m., before the last conversion.

VIII. Sample of slag at 12·20, from the hearth at the beginning of making the bloom.

IX. Sample of slag from the last bloom while under the steam hammer, at 12·38.

X. Sample of slag taken at 12·42, five minutes after taking out the last bloom.

Beside these there were also taken No. 1, a sample of the cinder or flux thrown in after smelting (charge, 40 lbs.), and No. 2, sample of cold flux or hammer slag from the rolls, for the purpose of rendering the refining easier (charge, 100 lbs.).

The slag which was to be analyzed quantitatively was first pulverized in a steel mortar and then finely ground in an agate mortar, and the little spangles of metallic iron were picked out. A weighed quantity of the powder was treated with hydrochloric acid which completely decomposed it, and the mass became gelatinous. The analysis was then conducted according to the usual known methods, which are described in the author's dissertation. The determination of alkalies was omitted, as they are of little value in discussing the puddling process, as also are lime and alumina, for they are only present in very small quantities and come from the lining of the furnace.

The analysis showed that the different samples of the slag had the composition shown in the following table:

Number of Slag.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	Cold flux added. 1.	Cold flux added. 2.
Silica SiO_2	15·32	17·13	20·20	23·68	20·37	19·03	21·91	19·45	16·26	17·39	20·69	15·00
Protoxide iron FeO	52·18	50·06	54·01	53·43	57·06	51·68	46·76	48·04	51·63	51·32	50·43	47·16
Sesquioxide iron Fe_2O_3	22·31	9·81	7·72	6·94	9·04	11·45	12·36	19·48	19·32	17·54	10·73	23·63
Oxide manganese MnO	6·56	9·33	12·38	12·61	10·10	11·69	15·87	14·40	8·46	9·34	14·62	8·83
Alumina Al_2O_3	0·33	0·35	0·41	0·49	0·60	0·27	0·60	0·84	0·38	0·42	0·50	0·61
Lime CaO	0·70	0·69	0·80	0·83	0·93	0·50	0·43	0·62	0·61	0·58	0·92	0·80
Phosphoric acid H_3PO_4	2·30	3·40	4·30	4·22	3·49	4·36	3·16	4·17	3·72	3·93	3·10	4·61
Sulphuric acid H_2SO_4	trace	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total iron	56·19	52·86	47·87	49·53	50·20	48·03	45·30	46·20	53·67	52·18	46·73	53·22

These numbers give us a better view of the details of the process if we put the quantity of each material contained in slag I at 100, as is done in the following table with those substances which are to be considered in the puddling process:

Number of Slag.	I	II	III	IV	V	VI	VII	VIII	IX	X
Silica	100	112	134	151	133	130	143	127	106	114
Protoxide of iron	100	113	105	100	109	99	90	92	99	98
Sesquioxide of iron	100	44	35	31	41	51	55	60	87	79
Oxide of manganese	100	143	187	191	154	178	242	220	129	142
Phosphoric acid	100	148	187	183	152	185	135	181	164	171
Total quantity of iron	100	94	85	81	90	86	80	83	96	93

The slag, as such, is not a chemical compound; it rather consists of a silicate which holds in solution more or less protoxide and sesquioxide of iron. On examining with a microscope slag that has been finely ground under water, transparent particles are distinctly seen in which are enclosed darker spots. Basic slag contains more dark spots than other slag. The dark spots in the slag consist of protoxide and sesquioxide of iron, while a silicate of iron forms the light spots. The author supposes that such a solution of these oxides is also produced in forging iron.

With this view, it is very easy to explain the favorable influence that manganese in cast iron has upon the refined product. Manganese hinders the solution of the oxides of iron in the silicate of iron, and thereby retards the formation of decarbonizing slag; hence, with cast iron containing manganese we are more certain of decarbonizing it up to any given point. By thus delaying the puddling process, it becomes possible to remove more of the sulphur and phosphorus.

The reactions that took place in the course of the test charge may be seen from the analyses given. A comparison of analyses I and II shows that the amount of silica, AlO_2, in the slag has risen from 100 to 112; that of oxide of manganese, MnO, from 100 to 143; protoxide of iron, FeO, from 100 to 113; phosphoric acid, H_3PO_4, from 100 to 148; while the quantity of sesquioxide of iron, Fe_2O_3, fell from 100 to 44, and the total amount of iron, from 100 to 94. The two last facts show plainly enough that during the melting the slag does not, as Zobel supposed, become more basic, but rather loses in basicity. The sesquioxide of iron which is formed on the surface of the charge before it is entirely fused does not go into the slag, but serves, like part of the sesquioxide in slag I, for the oxidation of other substances like manganese, silicon, sulphur and phosphorus in the cast iron, whereby the sesquioxide is reduced to protoxide and metallic iron, which are taken up by the slag. In harmony with this view, we notice that the quantity of silica, oxide of manganese and phosphoric acid in the slag increase.

We all know that the liquid cast iron, as it melts, sinks through the fluid slag on account of its greater specific gravity. At this point the previously mentioned reaction takes place, *i. e.*, the sesquioxide in the slag oxidizes the manganese and silicon in the cast iron, and in this way the absolute quantity of slag in the puddling furnace is, of course, increased. The same quantity of iron being distributed through a larger quantity of slag explains why its percentage has fallen in slag II to 94, but if we look at the table given below we shall see that the amount of metallic iron in the cast iron has increased at the same time from 100 to 105, so that either a part of the oxide of iron formed on the surface during fusion has been reduced to metallic iron, or a part of the iron in the slag has gone into the cast iron.

This establishes one point, namely, that when cast iron is melted in a puddling furnace those operations go on which are designated collectively by the name of "fining," *i. e.*, in this period there is separated from the cast iron a portion of the silicon, manganese and phosphorus, which go into the slag. According to the above, this is essentially conditioned by the oxides of iron in the slag, and the peroxide formed on the surface of the melting cast iron. Previous investigations by Lan and List have led to the same result, that during the melting period of the puddling process the slag looses in basicity, while the percentage of silica increases. According to Lan, the same operation takes place in puddling steel; List found it also in puddling for fibrous iron.

The fusing period lasted, in the test charge, 34 minutes. In puddling for granular iron it is desirable to melt the pig iron as quickly as possible. The iron began to flow in 26 minutes after it was put in.

The sample III, taken out at 11·27, after the flue damper was closed and the flux had been thrown in, also showed an increase of silica, of oxide of manganese and of phosphoric acid, and a decrease of both oxides of iron, an indication that the fining goes on soon after the melting. The flux added at this time (40 lbs.) can have a favorable influence in this regard in virtue of its containing sesquioxide of iron; at the same time it also increases the absolute quantity of slag, and this renders it less basic. The percentage of iron has fallen from 94 to 85.

Slag IV, taken at 11·35, showed the same proportion.

Slag V, on the contrary, shows an increase of basicity. The quantity of iron has again risen to 90, the percentage of protoxide and sesquioxide of iron has increased, the oxide of manganese, phosphoric acid and silica have fallen off. The stirring with the paddle, or rabbling, and the so-called boiling of the charge have begun. During the stirring, the air has access to the iron, and its effect is hightened by the foamy state of the mass. In consequence of the access of air sesquioxide of iron is formed, which enters the slag and makes it more basic. About this time, however, the decarbonization of the cast iron begins, which may be recognized by the little blue flames which are seen following after the paddle. The carbon is oxidized by the silicate of iron in the slag, whereby this is reduced from protosilicate to bisilicate, iron being liberated, according to the formula, $Fe_2SiO_4 + C = Fe + FeSiO_3 + CO$. A portion of the iron may, perhaps, be obtained from the bisilicate by its reduction to trisilicate and the formation of carbonic oxide. In consequence of this reduction the quantity of iron in the slag must decrease, as is shown by the analysis of Slag VI. At the same time this slag shows an increase of sesquioxide of iron, which is formed during the boiling of the charge by the combustion of the particles of iron on the surface. This combustion of the iron is easily seen by any one watching the process.

The strongest boiling of the charge took place at 11·56. The next sample of slag VII, was taken at 12·14, and its analysis shows that the silica has increased, and also the oxide of manganese and sesquioxide of iron, while on the other hand the protoxide of iron, phosphoric acid, and total amount of iron have decreased. Hence we see that the operation indicated in the other slags is continued. The percentage of metallic iron in the metal must have increased, but that of carbon decreased, as the analyses given below of iron samples will show.

After letting off part of the slag, the workmen began to form the bloom with the flue damper open, when sample VIII was taken at 12·20. This slag contained less silica and oxide of manganese than the preceding, but more phosphoric acid, and more of both oxides of iron, hence more iron in all. The increased quantity of iron in the slag is very natural, because in making the bloom the iron is greatly exposed to the oxidizing air. This also explains the relatively large loss by puddling, which is more considerable than if it were due to the necessary indirect oxidation of the other constituents of cast iron. If iron did not go into the slag in consequence of combustion during the making of the bloom, the wrought iron would weigh as much or more when taken out than the cast iron did when put in, on account of the iron taken up from the slag during the boiling.

Sample IX, taken at 12·38 from under the steam hammer, also shows an increased quantity of iron, for in carrying the bloom, saturated with slag, to the hammer a renewed oxidation of the iron takes place. Slag X, left after taking out the last bloom, showed the same relations as the others, namely, an increase of iron. This increase is very important in this respect, that when the next charge is put in the slag is able to oxidize the constituents of the cast iron. Experience has shown that with a cast iron containing but little silicon, a whole series of charges may be made without putting in any basic flux like iron turnings or hammer slag.

THE IRON SAMPLES.

The analyses of samples of iron gave the results presented in the following table:

Kind of Sample.	Iron.	Carbon.	Silicon.	Manganese.	Sulphur.	Phosphorus.	Time of taking sample. h. m.	Remarks.
I. Gray cast iron	88·06	2·57	3·21	5·14	0·097	0·975	10 43	Quite soft.
II. Sample of the material formed.	92·73	2·80	1·09	2·68	0·059	0·562	11 26	Very hard; fracture white.
III. Sample of iron	93·65	2·89	0·23	2·53	0·030	0·561	11 35	White; max. of carbon.
IV. The same	94·57	2·78	0·21	2·20	0·022	0·300	11 38	Single grains.
V. Sample of iron at beginning of conversion	93·74	2·63	0·220	1·31	0·020	0·250	11 45	Grains more malleable.
VI. Sample of iron before the last conversion	97·38	1·65	0·232	0 65	0·017	0·219	12 14	Half refined.
VII. Sample of iron at the beginning of making the bloom	97·78	1·38	0·211	0·326	0·010	0·181	12 19	Softer grains.
VIII. Sample of iron before the first bloom	98·39	0·96	0·108	0·280	0·003	0·170	12 38	Forged iron.
IX. Sample of last rolled bar	98·98	0·63	0·092	0·150	0·008	0·183	12 42	Coarse grained wire iron.

If we put the amount in sample 1 at 100, in the same manner as we did with the slags, we obtain the following in round numbers:

No.	Iron.	Carbon.	Silicon.	Manganese.	Sulphur.	Phosphorus.
I	100	100	100	100	100	100
II	105	109	34	52	40	60
III	106	112	7	49	33	58
IV	107	108	7	43	31	31
V	109	102	7	25	30	26
VI	111	64	7	13	30	22
VII	111	54	7	6	28	19
VIII	112	33	3	5	26	17
IX	112	25	3	3	25	13

During the melting, which lasted till 11·17, the carbon seemed to increase, as seen by analysis II, because it was concentrated in a smaller mass. The quantity of iron increased, the quantity of manganese, silicon, sulphur and phosphorus fell off decidedly. Iron sample II had a white fracture, because the carbon previously mechanically mixed has entered into chemical combination. We saw that the corresponding slag had gained in silica, manganese and phosphorus.

The carbon reached its maximum in sample III. Hence, during the melting period no decarbonization takes place. On the other hand, much silicon, manganese, sulphur and phosphorus are removed. About this time the stirring begins; hence, we see that in the following sample the carbon has fallen from 112 to 108. In sample V the carbon has already gone down to 102 and the iron up to 109. But now we see from sample VI that during the conversion (from 11·45 to 12·19) the amount of carbon is rapidly decreasing on account of the iron coming more into contact with the slag, and the other substances gradually decrease.

Even while the bloom is being made (VIII) there is a decided loss of carbon. Finally, from the last sample, we see that while the bloom is under the hammer and in the rolls a still farther loss of carbon takes place. The mechanical part of the process, in which iron and slag are pressed tightly together, continues the work of the furnace to a certain extent. This occurrence shows the importance of frequent hammering and rolling from a chemical point of view, to which, indeed, the physical properties of the iron stand in the nearest relation.

The chief point resulting from the preceding is this, that the strongest decarburation of the iron takes place during the conversion, and that the amount of carbon in the cast iron remains the same during the fusion, but that after the fusion the carbon is in a combined state.

The changes of the iron and of the slag, in the course of the process, gives us a complete picture of the operations in puddling for a fine grained iron. Whether these facts are the same in puddling the two other and less carbureted kinds of iron cannot be decided until farther experiments of the same kind have been made, under similar conditions, in making other kinds of iron in the same furnace. These experiments will soon be made by Dr. Kollmann.

A manganese flux, such as pyrolusite, MnO_2, has been employed for improving the puddling process and making it easier. These fluxes have rather served, on account of the action of the manganese, to retard the puddling process, than to furnish oxygen to oxidize the carbon in the iron. The greatest improvement of the whole process would consist in the discovery of an oxygen bearer to convey the oxygen from the air to the carbon in the cast iron, which would cost the furnace owner less than iron burned to proto and sesquioxide. It is easy to conceive of such an oxidation theoretically, but how far it can be carried out practically must be learned from practical experiments. Next it is, at all events, very important, as follows from the above, to procure a slag as rich as possible in oxides. This oxide might, perhaps, by breaking up and heating, be prepared for a flux to throw into the furnace.

The *North American* says that the workmen in Pompeii, while pursuing their researches in the house where the wooden writing tablets were lately discovered, came on two inkstands and the pen which had been used in inscribing. The pen is of metal, and something in the form of a goose quill.

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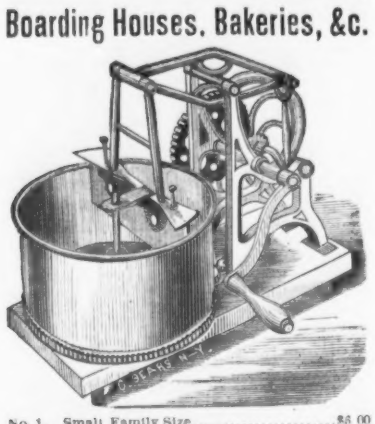

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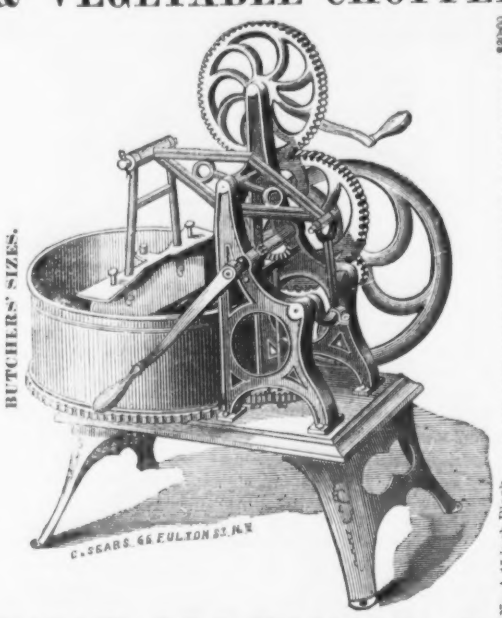

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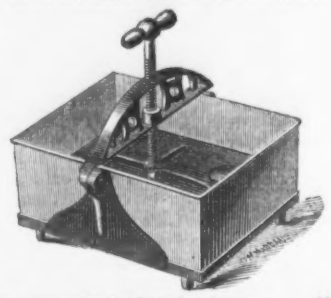

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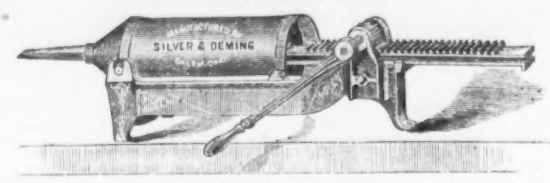

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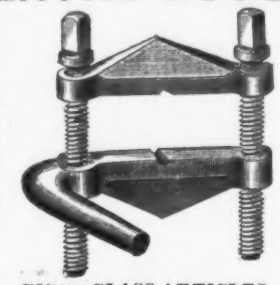

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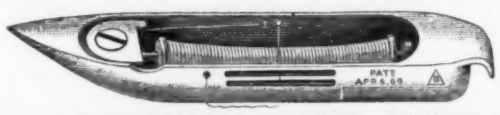

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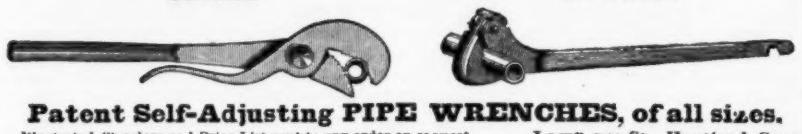

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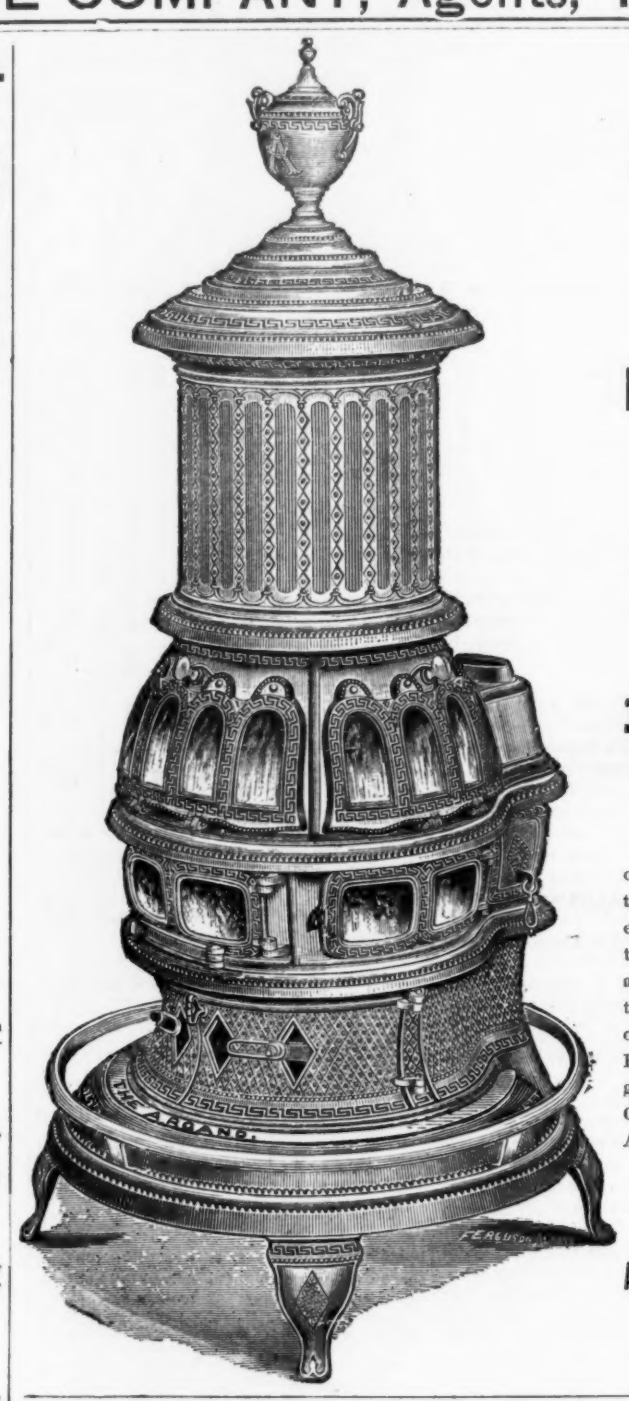

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FRANCE.

(Moniteur des Interets Materiels.)

PARIS, August 8, 1875.—*Metals.*—The usual summer dullness has set in, with the holidays of banks and other similar institutions. Crop prospects have continued to improve, the weather being fine, and it is to be hoped that the fall trade will prove both active and remunerative. Of all the articles of trade which we deal in, Metals seem to be in the soundest position; if we except tin, the stocks are not heavy, and in one shape or another the deliveries have exceeded expectations, including Tin: Speculation has almost ceased altogether since the English failures, and values are reduced to their true commercial ruling. Under these circumstances there is little to be apprehended and much to be expected in the immediate future; a more cheerful feeling in Metal circles is perceptible, both on the Continent and in England, and we trust that we shall soon be able to report advancing markets upon their own strength. *Copper.*—The European markets during the week have been steady, holders showing little inclination to part with what they have on hand or afloat, at least not at the rates now current, especially since it has been confirmed that our government bought the 30,000 tons Australian Tin in England we alluded to in our last. Charters on the West Coast for the last half of July have not exceeded 1400 tons, and therefore assist in strengthening the markets. The French markets, our own included, have shown increased firmness, and we close here as follows: Chili Bars, deliverable at Havre, 212 francs; Common ditto, 210; Ingots, 222·50, and English Tough Cake, 222·50. The following are the Havre quotations: Chili Bars, 210 to 212·50; ditto Refined Ingots, 222·50 to 225, and Lake Superior, 230 to 235. Marseilles is sustained on the basis of 215 francs for small ingots. *Tin* has been looking up. There had been a general and firm conviction that July would prove a good month in point of deliveries, but the result has far exceeded anticipations, and the metal has thereby entered upon a more hopeful future. The French markets have quickly caught this altered spirit, and assumed more firmness and steadiness. We quote at Paris, Banca, deliverable either here or at Havre, 220 francs; Straits, 205, and English, at Havre or Rouen, 212·50. English Tin at Marseilles may be quoted 220. *Lead.*—The European markets exhibit a sufficient degree of firmness to inspire increased confidence, and good soft English Pig cannot now be procured at London under £22. 5/. We quote here: French, at Paris, 57 francs; Spanish, at Havre, 56 50; English, there, 57, and Belgian and German, at Paris, 57. Spanish, at Havre, has sold at 54·25 to 54·50 on the dock; at Marseilles at 52. *Spelter.*—Although the European markets have been on the whole quiet, the same firmness observable still reigns, and we quote here, Silesian, deliverable at Havre, 62·25 francs; other good brands, deliverable there, 61·75, and deliverable here, 62·25. *Iron.*—The same listlessness, not to say weakness, still pervades the French Iron districts, and the critical state of affairs, which has now lasted nearly two years, has evidently not yet been overcome. Some establishments work from hand to mouth, others cannot well suspend operations even if they wanted, and go on producing, in some instances making sacrifices in order to do so, and in others clearing but a slender margin. The better kinds of Iron sell to more advantage than Merchants', and Steel does as a general thing better than Iron. In Steel plates the Belgian Cockerill Society came very near beating the French Creuzot in cheapness at the late opening of tenders for the navy. The replacing of Iron by Steel is going on in all directions. *Coal.*—The activity in beet root sugar refining secures a good campaign for our Northern Coal companies. Nothing of great promise is as yet apparent with respect to the remaining French districts.

BELGIUM.

(Revue Universelle).

BRUSSELS, August 8, 1875.—*Iron.*—The semi-annual statistics published by our Custom House authorities show that of Wrought Iron and its manufactures we exported during the first six months of 1875 to Holland, 20,735 tons; to England, 16,681; to France, 14,800; to Switzerland, 12,900; to the Zollverein, 10,700; to Turkey, 7300; and to Russia 7200. The general statement goes to prove that while times have not been brilliant, and prices have left comparatively little profit, Belgium has, nevertheless, succeeded in sending abroad 200,000,000 francs' worth of Wrought Iron and its manufactures, independently of Pig Iron and Iron Ore exportation. On the 25th instant an important opening of tenders will take place, for the furnishing of Steel Rails for the replacement of Iron Rails on the State railroads during the ensuing year. *Coal.*—Nothing of special importance has occured in the Belgian Coal markets during the week; prices are more or less the same, a further break being hardly possible unless wages decline at the same time; nor can any rise take place in Coal till Iron matters recover a normal state of affairs, which is not yet the case, despite the other encouraging figures we have given above.

GERMANY.

(Borsenhalle.)

HAMBURG, Aug. 7, 1875.—*Metals.*—Although the improvement that is going on in Metal matters is slow, there are many encouraging signs to lead to the belief that the worst has been got over during the two years of stagnation and prostration, due altogether to the comparatively favorable crop prospects in our country, and a large grain export business we shall do. *Copper* has been steady at the following quotations, here: Drontheim, 94 marks; Demidoff, 100; Minnesota, 110; and Chili Bars, 89. At Berlin: English and Australian, 90 to 92; Mansfield, 92. At Stettin the *Tin* has been looking up at the following rates here: Banca, 96 to 98 marks, and English, 96; at Berlin, English Refined, 95; at Stettin, Banca, 96. *Lead* continues quite firm; the 128,000 pounds from La Paz, Mexico, of a recent importation, sold at 20·25 marks the 50 kilos. We quote: English, 25·50 to 26 marks; German, 23·75 to 24·50; and Spanish, 25 to 25·50. Stettin is steady at 27 marks Spanish, 24 to 25 Tarnowitz, and 24 to 25 other German brands. Berlin quotes Tarnowitz, Hartz and Saxonian, 23·50 to 24. *Spelter* has been inactive and not quite as strong as previously. We quote Silesian, spot, 24·30 to 24·50; to arrive, 24·30 to 24·50. Breslau quotes 24 to 24·25 for common brands; W. H., 24 to 24·25; Godulla, 23·25. Berlin is steady at 24·50 to 25·50 Silesian; Stettin is 24 to 25.

HOLLAND.

(Koch & Vherboom.)

ROTTERDAM, Aug. 10, 1875.—*Metals* are steady; *Copper* at 50 to 52 guilders for Drontheim; Russian at Amsterdam, 56 to 58. *Tin.*—There is little doing; in consequence of a slight decline at London, Banca was sold, for cash, at 48⅜ guilders, and September auction sale delivery at 48½. Of Billiton little offers; spot may yet be had at 47¼; to arrive it sells at 46½. *Lead* remains tolerably firm; we quote Stolberg, 13¾ guilders; Spanish, 13; and German, 13; Soft Lead at Amsterdam, 13·50 to 13·75. *Spelter* is sustained at 13 to 13·25, Silesian, here and at Amsterdam.

EAST INDIES.

(Sandilands, Buttery & Co.)

PENANG, June, 28, 1875.—*Tin* was first bought at $22 to $22·12½ per picul for unsmelted; on departure of last mail the market closed a little easier at $22, but, subsequently, a further decline took place, and a small purchase was thus effected at $21·87½; however, better advices from home caused prices to advance again to $22·20, and the market closes at $22·10. Exchange, 6 months, London, 4/2⅛ to 4/2⅜.

CHINA.

(Arnhold, Karberg & Co.)

CANTON, July 2, 1875.—*Metals.*—*Lead.*—Holders of the now very moderate stock are extremely firm in their demands. Distant supplies are, however, obtainable at easier prices, in consequence of the recent fall in home markets, and L. B. is reported sold at $7·40 per picul, to arrive within four or six weeks. *Tin.*—No change of any moment has taken place in the article. The demand is moderately active, and previous rates are well supported. *Quicksilver.*—A good inquiry has continued to prevail, and the small supplies which came to hand in the interval have met with a ready sale at $120 to 122·50 per picul. Of California, 150 flasks are reported sold at $105, to arrive within three weeks, and large quantities are now offering for delivery at the beginning of August at $100 per picul. We quote: Lead, $7·55 to $7·85; Tin, $22 to $24·25; and Quicksilver, Spanish, $120 to $121; California, $122 to $123. *Exchange.*—5/8 to 5/9¾.

New Publications.

Traite de Metallurgie par L. Gruner. 1ere Partie, Metallurgie Generale. Tome I. Agents et appareils metallurgique. Principes de la combustion.

The first part of Gruner's long promised work has at last appeared, and, as was to be expected, is excellent. Unlike Percy's Metallurgy, it is not a *quasi* encyclopedia, each subject of which is treated separately and with no apparent connection with any other. Such a treatise is unfit to be placed in the hands of any one but a person already having a considerable knowledge of the subject. Gruner commences by stating that metallurgy, although once empyrical, is now based on scientific principles, and therefore, starting with these, it is easy to deviate in each particular case, as circumstances may require. Instead of giving a mere description of the methods pursued at different smelting works, he commences with the enunciation of the principles—as far as known—on which metallurgy is based. In the volume before us, Gruner first defines various technical terms; then, after a hasty sketch of the classification of ores, he passes to the consideration of the fuels, both natural and artificial. After this we find the agents promoting the metallurgical reactions spoken of, together with the materials used in construction. The second chapter treats of the metallurgical apparatus, commencing with a description of the furnaces and the principles on which they are constructed; next the blowing apparatus is treated in detail, but not so completely as in Wedding's German edition of Percy, and finally, the hot-blast ovens. The volume concludes with the commencement of the third chapter, in which the subject of combustion is most thoroughly discussed.

This is the best work on metallurgy which has appeared in the last 30 years, and taken together with the German (not the English) edition of Percy, the two are the most important and almost the only works on metallurgy needed in one's library. F. P.

Catalogue of H. A. Rogers, Importer and Dealer in Railway, Machinists' and Manufacturers' Supplies, 19 John Street, New York. 272 Pages.

In the work before us we have another illustration of that enterprise and good taste among American manufacturers in the publishing of their trade lists in a style which ranks them with works of art. The style and magnificence and artistic beauty of many of our American trade lists is a matter of surprise and wonder to English newspapers, which are profuse in their admirations of them as artistic productions. Certainly the manufactureas of this country may be proud of their catalogues. Typography paper and engraving are, in the higher classes of work, all that could be desired in books of the highest class.

Although this catalogue cannot be ranked with the most sumptuous of those which have been produced in this country, yet it is in every way good; the engravings are almost without exception good, and many of them by the best engravers in this country. The heavy calendered paper of a pale cream color is all that could be desired, while the printing is first-class. Colors are used where they are necessary, and in the general mechanical execution there seems to be little or nothing to be desired.

In addition to the price lists and similar matter to be found in works of this kind, good and intelligent descriptions accompany almost all the leading articles, enabling the reader to form an intelligent opinion in regard to them. In the case of new goods or those but little known, this is a feature especially valuable. A copious and well classified index makes reference to any particular article an easy matter.

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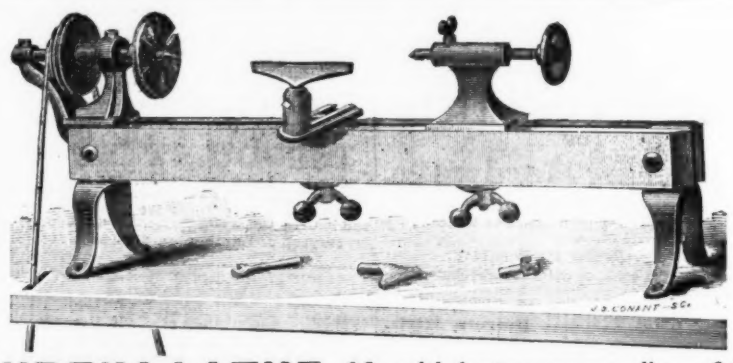

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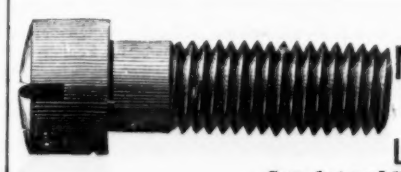

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CARBON STOVE CO., Burlington, N. J

For Sale, Hardware Business

In successful operation since 1845. Rare opportunity to secure an old and established business. Stock of General Hardware, Iron, Nails, &c., &c., will invoice $6000 to $8000. Two story brick business room, 25x90, with cellar under all, for $3000. After first payment will make such terms as will be easy, and cannot fail to suit purchaser. Will assist purchaser at starting, if necessary. Satisfactory reasons for selling will be given.

Address, **C. U. RAYMOND,**
Cambridge City, Wayne Co., Ind.

A **BLAST FURNACE FOR SALE** at Napanoch, Ulster Co., State of New York, on the Delaware and Hudson Canal, with extra facilities, and a capacity of 20 tons per day Anthracite or 15 tons of Charcoal, together with a splendid water-power, goes with the furnace. The furnace is in good order and could be put in blast in a short time. Will be sold very low on accommodating terms. Charcoal can be had for many years.

Address, **H. BANGE,**
94 Gold Street, New York City.

FOR SALE.—The half of a patent, with machinery and tools for making the same. Said patent is one of the best in the country; an article used in every household. Address,

C. W. TUTTLE, Box 83,
West Haven, Conn.

For Sale,

Half or whole interest in Bodkin Bros. patent safety iron hollow ware manufacturing business, with full set of patterns, tools, flasks, machinery, dies, &c., the same being a monopoly and protected by two patents for 15 and 16 years, respectively, from May 1875. This business is now well established, and offers great inducements to men of capital. Parties wishing to investigate will please address,

BODKIN BROS., Jersey City, N. J.

For Sale,

Car Shop in Conshohocken, Pa., 50x100 ft. fronting on P. and R. R. R., with blacksmith shop 20x30 ft., engine house 15x30, 25 horse engine, and all the modern machinery necessary. The lot is 135x300 ft. For particulars call on or address,

HUTCHINSON & FAGAN,
Norristown, Pa.

FOR SALE.

At Lowest Manufacturers' Rates,

GUNS & SHEET ZINC,

Best German and Belgian Brands,

By *LOUIS WINDMULLER & ROELKER,*
20 Reade Street, N. Y.

For Sale,

Stove and Tin Business.

Will sell, on good terms, one of the best arranged House Furnishing Stores in Canada West, at St. Thomas. The premises are roomy, the buildings having been arranged especially for this trade, with Tinsmith's workshops and benches complete for 12 men.

Present Stock about $6000.

St. Thomas is the head quarters of the Canadian Southern Railway Co. To a practical, energetic man this offers unusual advantages. Business well established and with good connection. Reason for disposal, present proprietors increasing their wholesale and retail Hardware Store next door to the above premises. Address

HORSMAN & HORSMAN,
Iron and Hardware Merchants,
St. Thomas, Canada West.

FOR SALE.

Rolling Mill and Bridge Building Machinery,

Of NEW ENGLAND IRON COMPANY.

Upright Corliss Engine, 32 in. cylinder, 5 ft. stroke; wheel, 32 tons, 25 ft. diam.

Puddling Train, Merchant Train, 16 in., built by Totten.

Rotary Squeezer, Etc., Etc.

Testing Machine.

Bolt Cutters.

Milling Machines, and all Machinery necessary for Bridge Work. In lots to suit Apply to

WM. E. COFFIN & CO.,
8 Oliver Street, Boston.

Trade Report.

OFFICE OF THE IRON AGE,
WEDNESDAY EVENING, August 25, 1875.

The past week has not been characterized by events of great importance in the financial markets. We are still experiencing our midsummer dullness in Wall street, and there is but little to encourage speculation. Money continues very abundant, and borrowers on call are freely accommodated at 1¼ @ 2¼ per cent. Mercantile paper is fairly quotable at 4 @ 5½ per cent. for prime.

The gold market has been dull and without animation, and we hear of no speculative combinations now at work to influence the course of the premium, which has moved within narrow limits, as shown in the following table:

	Highest.	Lowest.
Thursday	114⅛	113⅝
Friday	113⅝	113⅝
Saturday	113⅝	113⅝
Monday	113⅝	113⅝
Tuesday	113⅝	113⅝
Wednesday	113⅝	113⅝

On Thursday the Treasury sold coin to the amount of $1,500,000 at 113·52 @ 113⅝.

In the bond market governments were strong in the currency issues and firm on 5 per cents. Gold bearing 6 per cents are quiet. Railway mortgages continue in good investment demand, and prices are strong. We give below the closing quotations of governments.

The stock market has been quiet, but fairly strong. The principal dealings have been in Lake Shore, St. Paul, Northwest, Rock Island, Western Union and Pacific Mail. We give below the highest and lowest of to-day's quotations of shares in the active list.

In the last bank statement there was a decrease in all the items. The banks, however, hold $21,232,200, in lawful money in excess of the 25 per cent. required by law, which is $927,800 less than last week. The following are the comparative totals:

	Aug. 14.	Aug. 21.	Differences.
Loans	$283,541,900	$282,961,200	Inc. $500,700
Specie	13,442,100	12,385,700	Dec. 1,056,400
Leg. tend	70,726,200	70,390,700	Dec. 335,500
Deposits	248,033,200	246,176,800	Dec. 1,856,400
Circulation	18,412,700	18,234,500	Dec. 178,200

The currency question continues to increase in interest, and public opinion is taking shape. It is now evident that, should the West commit itself to what is known as the "rag money policy," the East and the South will not follow the lead, but that parties will be split and, probably, a new party organized with a pledge of specie payments, and reform as the principal planks of its platform. The issue of the Ohio canvas is awaited with greater interest than usually attaches to the gubernatorial contest in a Western State.

The following tables show the foreign trade movements for the week:

IMPORTS.

	1873.	1874.	1875.
Total for week	$8,081,843	$6,871,325	$7,600,230
Prev. reported	259,514,343	258,646,262	219,534,760
Since Jan. 1	$267,596,186	$265,517,587	$227,134,990

Among the imports of general merchandise were articles valued as follows:

	Quant.	Value.
Anvils	201	$2,233
Brass goods	27	4,302
Bronzes	48	7,950
Chains and anchors	39	2,403
Copper		1,670
Cutlery	121	37,825
Guns	66	12,209
Hardware	26	3,522
Iron, pig, tons	300	4,693
Iron, sheet, tons	25	3,042
Iron, other, tons	161	11,709
Lead, pigs	2,187	16,093
Metal goods	130	16,628
Needles	15	8,116
Old metal		854
Platina	1	3,576
Per. caps	10	1,661
Saddlery	4	719
Steel	2,251	15,959
Spelter	57,200	2,923
Tin, boxes	14,617	103,989
Tin, slabs, 1218	132,545	23,763
Wire	1,075	9,891
Zinc	5,500	368

EXPORTS, EXCLUSIVE OF SPECIE.

	1873.	1874.	1875.
For the week	$5,281,459	$5,660,319	$4,997,355
Prev. reported	179,527,124	186,611,106	158,235,789
Since Jan. 1	$184,808,583	$192,271,425	$163,233,144

EXPORTS OF SPECIE.

Total for the week	$622,978
Previously reported	62,609,424
Total since January 1, 1875	$63,232,402
Same time in 1874	39,602,471
Same time in 1873	34,825,230
Same time in 1872	55,820,441

Government bonds at the close were quoted as follows:

	Bid.	Asked.
U. S. Currency 6's	123	123½
U. S. 6s 1881, reg	120½	120¾
U. S. 6s. 1881, cou	121½	122
U. S. 5-20 1864, reg	115¾	116
U. S. 5-20 1864, cou	116	116¼
U. S. 5-20 1865, reg	118	118¼
U. S. 5-20 1865, cou	118	118¼
U. S. 5-20 1865, reg. new	118¼	118¾
U. S. 5-20 1865, cou	118¾	118¾
U. S. 5-20 1867, reg	120¾	120¾
U. S. 5-20 1867, cou	120½	120¾
U. S. 5-20 1868, reg	120¾	120¾
U. S. 5-20 1868, cou	120¾	120¾
U. S. 10-40 reg	114½	115
U. S. 10-40 cou	118½	118¾
U. S. 5s, 1881, reg	116	116¼
U. S. 5s, 1881, cou	116¼	116¾

The following were the highest and lowest prices of stocks to-day:

	Highest.	Lowest.
N. Y. Cen. & Hudson Consolidated	104¾	104¾
Lake Shore	61¾	61¾
Rock Island	108	107¾
New Jersey Central	111¾	111¾
Del. Lack. and Western	121¾	121¾
Michigan Central	66¾	66¾
Cleveland and Pittsburgh	90	90
Panama	142	136
Wabash	6¾	6¼
Western Union Telegraph	84½	84¾
Atlantic and Pacific Telegraph	20¾	20¾
Northwestern	42½	41¾
" Pref	57¾	56¾
Milwaukee & St. Paul	38¾	38
" Pref	64½	64
Pacific Mail	40¾	39¾
Erie	16	15¾
Ohio & Mississippi	19¾	19¾
Union Pacific	73	73
Missouri Pacific	48¾	48¾
Hannibal & St. Joseph	24¾	24¾
" " Pref	39¾	39¾
Quicksilver	16	16
United States Express	44	43¾

GENERAL HARDWARE.

Notwithstanding the fact that the country in general is adhering strictly to the conservative policy of purchasing just what goods their present requirments call for, and no more, a brisk trade, steadily increasing in volume as the season advances, is being done, and many of our city houses are fairly busy. In the matter of prices few changes of importance have tranpired, and the tone of the market is firm and strong.

On the 18th instant the National Screw Company, by a vote of its stockholders, consolidated with the American Screw Company, of Providence, R. I.

In Foreign Hardware there is nothing of interest to note, except that it shares in the general improvement.

H. Burden & Sons have issued a circular under date of 23d instant, advancing Horse and Mule Shoes ½c. per pound, making the price in this city $5·12½ per keg for Horse Shoes and $6·12½ for Mule Shoes. The quantity discounts remain as before. The Rhode Island Horse Shoe Company—Horace Durrie & Co., agents—have issued a circular under same date, from which we extract the following:

Our present prices for Horse and Mule Shoes are as follows:

Perkins Pattern	5	cents per lb., cash.
Rhode Island Pattern	5¼	" " "
" " City	5¼	" " "
Mule Shoes	6	" " "
Perkins Trot'g or Snow Shoes	6¼	" " "

Delivered free on board at Providence, R. I. Freight to Boston, 7/8 cents per keg; freight to New York, 10 cents per keg.

Sargent & Co. have issued their discount sheet, revised to date. The changes it contains, which are few and unimportant, have nearly all been anticipated in our Price Current, on another page. They have also printed several pages to be inserted in their catalogue of 1874, illustrating new goods, and in some instances making void portions of the catalogue referred to. Among the new articles presented are Screen Door Catches in Berlin Bronze, a handsome line of Druggist's Drawer Pulls, some new patterns of Shutter Bars, Inside Shutter Hinges and Loose Pin Surface Butts in the same finish; they also present a new Clothes Line Pulley, No. 70, White Metal, with Brass Bushed Wheel, and give a list and illustrations of Sharp's Patent Strap and T Hinges, etc.

The Hart, Bliven & Mead Mfg. Co. have in preparation a discount sheet, which will be issued on the 1st proximo.

Hermann Boker & Co., 101 and 103 Duane street, have taken the agency for the goods of the Lawrence Curry Comb Company, and will offer from stock, at factory prices, a full line of their popular goods. The following circular in this connection explains itself:

NEW YORK, August 25, 1875.—You are hereby notified that the various Letters Patent held by the Lawrence Curry Comb Company secure to them the exclusive right to make or sell a Curry Comb with a brace extending from the handle over the back of the Comb toward the front row of teeth, whereby the Comb is strengthened and rendered more convenient to grasp. The great desirability and consequent popularity of our Comb has induced certain other manufacturers to offer to dealers imitations of the same. You are hereby specially notified that any parties manufacturing or selling Combs in violation of our rights, render themselves liable to injunction and suit for damages, and such proceedings will be prosecuted against all reliable parties either making or selling Combs in infringement of our patents.

LAWRENCE CURRY COMB COMPANY.
WM. E. LAWRENCE, President.

Trade in Nails falls short of the expectations of holders here, and no improvement in the tone of the market can be announced. We continue to quote 10d. in large or small lots, at $3·20 @ $3·25, net, and for some brands a fair order could be placed at $3·15 for 10d.

Landers, Frary & Clark have issued a handsomely illustrated catalogue of the goods of their manufacture other than Cutlery. The book covers 107 pages, and is handsomely printed on heavy tinted paper. It contains, among other lists, their net prices for Frary's Improved Spring Balances, showing the corresponding numbers of other prominent manufacturers of similar goods. In the matter of Table Cutlery, they say in a preface: "We issue no price list of this line of goods, but shall be pleased to exhibit samples and quote prices on application."

Romer & Co., Newark, N. J., illustrate in their advertisement, on page 11, a sample of their Patent Jail or Scandinavian Locks. They quote these goods at 10 per cent. discount from their list.

The Lalance & Grosjean Mfg. Co. have just received from the printer's hands their revised Catalogue, Price List and Discount Sheet, dated 15th instant. This Catalogue, which contains everything represented in their large illustrated book of July 1, 1874, and supplements, Nos. 1 and 2, is a model of completeness, and is, if anything, more fully illustrated throughout its 46 pages than the larger work, containing nearly 200 pages, alluded to. The engravings, of which there are between four and five hundred, although of necessity small, are so true to their originals that they will be found quite as useful for the purpose for which they are intended as the larger representations which go to make up the heavy volumes, which, as a rule, manufactures of these wares consider necessary for a comprehensive presentation of their goods. The new Catalogue will be found portable and convenient for reference. It contains beside changes in lists made necessary by the combination of manufacturers since their last book was issued, a large number of new goods and specialties manufactured only by this establishment. In their preface addressed "To Buyers," they say: "We submit the accompanying complete (though condensed) Price List of L. & G. Mfg. Co.'s wares, and assure you that the assortment is as large, the quality as good, our shipments as prompt, prices as low, discount as great, and terms as favorable as are

offered by any manufacturer in this country or Europe."

We print below the revised list entire. The following are their regular discounts. For full cases and large lots an extra discount will be allowed.

DISCOUNTS.

Price List, August 15, 1875.

Oval Tin Ears, No. 10, 20, 30, 40, 50, 55 ... dis.	40 %
Tin Ears, No. 01, 02, 03, 04, 05	40 %
L. & G. Tea Kettle Ears, No. 44, 55, 66, 77	40 %
L. & G. Kettle Ears, No. 1, 2, 3, 4, 5, 6, 7	40 %
Extra Strong Kettle Ears, No. 100, 200, 300, 400, 500, 600, 700	40 %
Coal Hod Ears, No. 1	40 %
Deep Fry Pans, Polished and Tinned, No. 0, 1, 2, 3, 4, 5, 6, 7, 8	40 %
Deep Hammered Fry Pans, Bright and Tinned, No. 0, 1, 2, 3, 4, 5, 6, 7, 8	40 %
Shovels, No. OB, B, 100, 200, 300, 500, C, A, 1, 2, 000, 6, 7, 30, 130, 35, 135, 04, 4, 5, 128, 129, 130, 131	30 %
Fire Sets, No. 228, 229, 230, 328, 329, 330, 328½, 329½, 330½	30 %
Cover Lifters, No. 1, 2, 3	30 %
Pokers, No. 8, 9, 10, 18, 19, 20	30 %
Tongs, No. 39, 40, 48, 49, 50	30 %
Table Service, No. 0, 5, 1, 10, 20, 40	25 %
Octagon Pots, No. 11, 22, 33, 44, 55, 66, 77, 333, 444, 555, 666, 777	25 %
Patent Seamless Scoops, Planished and Brass, No. 59, 60, 61, 61½, 62, 63, 64	25 %
Planished Pieced Cups, No. 1	25 %
Caster Frames, No. 1, 2	25 %
Planished Cocoa Shaped Dippers, No. 52, 53	25 %
Kerosene Lamps, No. 1, 2, 3, 4	25 %
Wire Broilers, No. 20, 21, 22, 23, 24, 25	25 %
Tin Toys	25 %
Animal Cake Cutters, No. 1, 2, 3	25 %
Egg Whips, Tinned and Wood Handled	25 %
Britannia Soup Ladles, No. 9kkk, 9kk, 9k, 9	25 %
Nickel Plated Soup Ladles, No. 90kkk, 90kk, 90k, 90	25 %
Wood Handled Cake Turners, No. 19, 20	25 %
Wood Handled Flesh Forks, 2 and 3 pronged, Inches, 13, 16	25 %
Tea or Coffee Pot Spouts, No. 1, 2, 3	25 %
Gas Straps, Inches, ½, ⅝, ¾, ⅞, 1, 1¼, 1½, 2	25 %
Melting Ladles, Inches, 2½, 3, 3½, 4, 4½, 5, 5½, 6	25 %
Miners' Gold Pans, No. 41, 42, 43	25 %
Coffee Mills, No. 11, 125	25 %
Saw Knives, No. 1	25 %
Cook Knives, L. & G., Inches 4, 5, 6, 7, 8, 9, 10, 11, 12	25 %
Cook Knives, Sabatier, Inches, 4, 5, 6, 7, 8, 9, 10, 11, 12	25 %
Curry Combs, No. 40, 50, 60, 80, 150, 61, 73, 81, 82, 173	25 %
Bowls and Pitchers, No. 1, 2	25 %
Water Carriers and Slop Jars, No. 1	25 %
Toilet Stands, No. 1, 1½, 2, 2½, 3, 3½, 4, 4½, 4¾, 5½, 5¾, 6, 6½, 6¼, 7½, 7¾	25 %
Towel Stands, No. 1, 2	25 %
Folding Chairs, No. 5	25 %
Wire Nails, Inches, ⅜, ⅝, ¾, ⅞, 1, 1¼, 1½, 1¾, 2, 2¼, 2½	25 %
Jardinieres, No. 5, 6, 12, 13, 7	25 %
Fancy Tables, No. 1, 2, 3, 4, 5, 6	25 %
Umbrella Stands, No. 1, 2, 3, 4, 5, 6	25 %
Forged Basting Spoons ... (Less than Case lots)	25 %
Patent Threaded Basting. " " "	10 %
Patent Threaded Salt, Tea, Table Spoons and Forks ... (Less than Case lots)	10 %
Patent Silver Steel Tea and Table Spoons and Forks ... (Less than Case lots)	15 %
Planished Brass Kettles ... (Less than 500 lb. lots)	44 cts., net
Common Stamped Ware ... dis.	5 %
All other goods on the list (not mentioned above)	20 %

TERMS.—All sales will be for Cash, with no allowance for Exchange. If money accompanies the order, or is received by us within ten days from date of Invoice, 2 per cent. will be allowed, or 1 per cent. if received in thirty days. All bills remaining unpaid sixty days from date will be subject to Sight Draft without notice, unless otherwise agreed, and in all cases interest will be charged after sixty days. We will make such freight allowance as will place us on an equality with any manufacturer of similar wares in the United States. Spoons, Coffee Mills and Brass Kettles boxed without charge; other goods boxed and carted at cost.

REVISED PRICE LIST OF LALANCE & GROSJEAN MANUFACTURING CO.

PLANISHED AND NICKEL PLATED WARE.

Complete Oval Chafing Dishes, with Imperial Covers consisting of Stand, Water Pan, Plate and Cover.

Inch	10	12	14	16
Planished ... each,	$4·00	5·00	6·25	7·50
Nickel Plated ... "	7·00	8·50	10·75	13·00
Inch	18	20	22	24
Planished ... each,	$9·00	11·50	14·25	16·50
Nickel plated .. "	16 50	20·00	26·00	30·00

Complete Oval Chafing Dishes, with Low Covers, consisting of Stand, Water Pan, Plate and Cover.

Inch	10	12	14	16	18	20	22
Planished .. each,	$3·50	4·50	5·25	6·25	7·75	10·25	12·75
Nickel Plated "	6·00	7·00	9·00	11·00	14·50	17·50	22·00

Low Dish Covers—Oval.

No	70	80	110	111	112
Inch	7	8	10	11	12
Planished ... each,	$ ·60	·80	1·00	1·15	1·30
Nickel Plated .... "	1·00	1·25	1·75	2·00	2·25
No	114	116	118	120	122
Inch	14	16	18	20	22
Planished ... each,	$1·60	2 00	2·25	3·25	4·00
Nickel Plated .... "	2·50	3·25	5·00	6·00	7·50

Fluted Low Dish Covers—Oval.

No	210	211	212	214	216	218	220
Inch	10	11	12	14	16	18	20
Planished .... each,	$1·10	1·25	1·50	1·75	2·25	3·00	3·75
Nickel Plated. "	2·00	2·25	2·50	3·00	4·00	5·50	6·75

Imperial Dish Covers—Oval.

No	310	311	312	314	316
Inch	10	11	12	14	16
Planished ... each,	$1·55	1·70	2·00	2·60	3·15
Nickel Plated. "	3·00	3·25	3·50	4·25	5·25
No	318	320	322	324	
Inch	18	20	22	24	
Planished ... each,	$3·45	4·60	5·45	6·30	
Nickel Plated ... "	6·75	8·50	10·75	12·75	

Fluted Imperial Dish Covers—Oval.

No	410	411	412	414	416
Inch	10	11	12	14	16
Planished .... each,	$2·00	2·25	2·50	3·00	3·75
Nickel Plated "	3·50	3·75	4·00	5·00	6·00
No	418	420	422	424	
Inch	18	20	22	24	
Planished ... each,	$4·50	5·50	6·50	7·75	
Nickel Plated ... "	8·00	10·00	12·50	14·50	

Oval Chafing Dish Plates.

Inch	10	12	14	16
Planished ... each,	$0·80	1·00	1·20	1·50
Nickel Plated .... "	1·50	1·75	2·25	3·00
Blue and White, Enameled ... each,	$1·50	1·75	2·25	3·00
Inch	18	20	22	24
Planished ... each,	$2·10	2·80	4·00	4·90
Nickel Plated .... "	4·00	5·00	6·50	8·00
Blue and White, Enameled ... each,	4·00	5·00	6·50	8·00

Oval Chafing Dish Stands.

Inch	10	12	14	16
Planished ... each,	$1·25	1·50	1·75	2·00
Nickel Plated .... "	2·25	2·75	3·50	4·00
Inch	18	20	22	24
Planished ... each,	$2.50	3·00	3·50	4·00
Nickel Plated .... "	4·75	5·50	7·00	8·00

Oval Chafing Dish Water Pans.

Inch	10	12	14	16	18	20	22	24
Each	$0·55	·70	·80	·90	1·10	1·25	1·40	1·75

Bread Trays.

No	1	2
Planished ... each,	$0·60	·75
Nickel Plated ... "	1·00	1·30

Oval O. G. Urns.

No	0	1	2	3	4
Planished ... each,	$5·00	5·50	6·50	7·00	7·75
With two Faucets "	..	..	..	..	..
With two Faucets and Partition. each,	..	..	..	..	..
No	5	6	7	8	
Planished ... each,	$9·25	11·25	12·50	15·50	
With two Faucets .... "	..	18·75	15·25	18·25	
With two Faucets and partitions ... each,	..	15·25	16·50	20·00	
No	0	1	2	3	4
Nickel Plated .. each,	$10·75	11·25	12·75	14·25	15·25
Copper ... "	10·00	11·00	13·00	14·00	15·50
No	5	6	7	8	
Nickel Plated ... each,	$18·25	21·00	23·50	28 00	
Copper	18·50	22·50	25·00	31·00	

Round Urns.

No	0	1	2	3	4
Planished ... each,	$4·20	4·85	5·45	6·30	7·75
Nickel Plated .. "	8·50	9·50	10·50	12·00	14·00
Copper ... "	9·00	10·00	11·00	13·00	15·00

No	5	6	7	8
Planished ... each,	$9·00	11·00	14·25	16·00
Nickel Plated .. "	16 00	19·00	24·00	28·00
Copper ... "	18·00	22 00	25·00	30·00

Oval Tumbler Warmers.

Planished (to fit any size), O. G. Urns .... each, $2·50
Nickel Plated " " " " 4·00
Copper " " " " 5·00

Round Oyster Dishes, complete, with Low Covers and Water Pans.

No	1	2
Planished ... each,	$2·10	2·80
Nickel Plated ... "	3·50	4·50

Oyster Dish Plates.

Planished ... each,	$0·25	·30
Nickel Plated ... "	·50	·65
Blue and White, Enameled ... "	·50	·65

Oyster Dish Covers.

Planished ... each,	$0·30	·35
Nickel Plated ... "	·75	1·00

Round Vegetable Dishes, improved pattern, with Water Tight Compartments.

No	90
Inch	9
Planished ... each,	$1·75
Nickel Plated ... "	3·50

Oval Vegetable Dishes, improved pattern, with Water Tight Compartments.

No	100	120	140	160
Inch	10	12	14	16
Planished ... each,	$3·25	3·75	4·50	5·25
Nickel Plated ... "	6·50	7·50	9·00	10·50

Round Vegetable or Chop Dishes, arranged to fill with Hot Water.

Inch	9	10
Planished ... each,	$1·25	1·50
Nickel Plated ... "	2·50	3·00

Oval Vegetable Dishes, arranged to fill with Hot Water.

Inch	10	12	14	16	18
Planished ... each,	$2·75	3·25	4·00	5·00	6·75
Nickel Plated "	5·25	6·75	8·00	10·00	13·05

Butter Kettles.

No	00	0	1	2	3
Planished ... each,	$1·00	1·35	1·60	1·75	2·00
Nickel Plated "	1·75	2·75	3·00	3·50	4·00

Seamless Egg Cups.

No. 1, Planished ... per doz. $1·25
No. 2, Nickel Plated ... " 2·30

Seamless Molasses Pitchers, with Drip Plate Attached.

No. 1, Planished ... each, $0·60
No. 10, Nickel Plated ... " 1·10

Seamless Milk or Water Pitchers.

No	4	8
Planished ... each,	$1·50	1·75
No	14	18
Nickel Plated ... each,	$2·25	2·50

Seamless Ice Bowls.

Quarts	2	4
Planished ... each,	$1·00	1·40
Nickel Plated ... "	2·00	2·50

Seamless Round Soup Tureens.

No	18
Planished ... each,	$2·50
Nickel Plated ... "	4·50

Oval Soup Tureens.

No	1	2	3	4	5	6	7
Quarts	3	4	6	8	10	13	18
Planished .. each,	$2·50	2·75	3·25	3·75	4·25	5·25	7·00
Nickel Plated "	4·00	4·25	5·25	5·75	7·00	8·75	11·00

Oval Soup Tureens, with Rim Foot.

No	20	30	40	50	60	70
Planished ... each,	$3·00	3·50	4·25	5·00	6·00	7·75
Nickel Plated "	5·00	6·00	7·00	8 00	10·00	13·00

Oval Soup Tureens, with Stands and Water Pans.

No	200	300	400	500	600	700
Planished ... each,	$5·25	6·00	7·00	8·40	9·75	11·25
Nickel Plated "	9·00	10·50	12·75	15·00	17·00	20·00

Seamless "Individual" Service.

No. 0, Planished Set ... $1·50
No. 5, Nickel Plated Set ... 3·00

Each Set in a Box.

Seamless Table Service.

No. 1, Planished Set, 5 Pieces (in a box) ... $5·00
No. 10, Nickel Plated Set, 5 Pieces (in a box) ... 8·00

Seamless Coffee Pots.

No. 6, Planished ... each, $1·75
No. 16, Nickel Plated ... each, 2·50

Seamless Tea Pots.

No	4	5
Planished ... each,	$1·25	1·50
No	14	15
Nickel Plated ... each,	1·65	2·25

Seamless Sugar Bowls.

No. 2, Planished ... each, $0·50
No. 12, Nickel Plated ... " 1·00

Seamless Cream Pitchers.

No. 1, Planished ... each, $0·50
No. 11, Nickel Plated ... " 1·00

Seamless Slop Bowls.

No. 3, Planished ... each, $0·45
No. 13, Nickel Plated ... " ·85

"Decorated" Seamless Table Service.

No. 20, Nickel Plated, 5 Pieces (in box) ... $18·00
No. 30, Nickel and Silver Plated, 5 Pieces (in box) ...

Porcelain Lined.

No. 40, Nickel and Silver Plated, 5 Pieces (in box) ... 24·00

"Decorated" Seamless Coffee Pots.

No. 26, Nickel Plated ... each, $4·75
No. 36, Nickel and Silver Plated ... "

Porcelain Lined.

No. 46, Nickel and Silver Plated ... each,

"Decorated" Seamless Tea Pots.

No. 25, Nickel Plated (3 pint) ... each, $4·50
No. 35, Nickel and Silver Plated (3 pint) .. "

Porcelain Lined.

No. 45, Nickel and Silver Plated (3 pint) .. "

"Decorated" Seamless Slop Bowls.

No. 23, Nickel Plated ... each, $2·25
No. 33, Nickel and Silver Plated ... "

Porcelain Lined.

No. 43, Nickel and Silver Plated ... each,

"Decorated" Seamless Sugar Bowls.

No. 22, Nickel Plated ... each, $3·50
No. 32, Nickel and Silver Plated ... "

Porcelain Lined.

No. 42, Nickel and Silver Plated ... each,

"Decorated" Seamless Cream Pitchers.

No. 21, Nickel Plated ... each, $2·75
No. 31, Nickel and Silver Plated ... "

Porcelain Lined.

No. 41, Nickel and Silver Plated ... each,

Chocolate Pots.

No. 40, Planished ... each, $1·25
No. 41, Nickel Plated ... " 2·50

Coffee Boilers.

No. 14, Planished, 4 pints ... each, $1·25
No. 16, " 6 pints ... " 1·50
No. 17, Nickel Plated, 6 pints ... " 3·00

Octagon Tea Pots.

No	11	22	33	44
Pints	1	2	3	4
Half Planished ... per doz.,	$3·00	4·50	5·00	6·00
No	55	66	77	
Pints	5	6	7	
Half Planished ... per doz.,	$7·00	7·50	8·25	

Octagon Coffee Pots.

No	333	444	555	666	777
Pints	3	4	5	6	7
Half Planished ... per doz.,	$6·50	7·50	8·50	10·00	11·00

Round Tea Pots.

Pints	1	2	3	4
Planished ... each,	$0·55	·70	·80	·95
Nickel Plated ... "	1·00	1·35	1·50	1·70
Pints	5	6	7	8
Planished ... each,	$1·05	1·25	1·40	1·60
Nickel Plated ... "	1·85	2·15	2·40	2·75

Oval Tea Pots.

Pints	1	2	3	4
Planished ... each,	$0·70	·80	·90	1·05
Nickel Plated ... "	1·10	1·50	1·65	1·85
Pints	5	6	7	8
Planished ... each,	$1·15	1·40	1·60	1·90
Nickel Plated ... "	2·10	2·35	2·50	2·75

Round Coffee Pots.

Pints	1	2	3	4
Planished ... each,	$0·60	·75	·85	·95
Nickel Plated ... "	1·10	1·40	1·60	1·80
Pints	5	6	7	8
Planished ... each,	$1·15	1·25	1·30	1·40
Nickel Plated ... "	2·00	2·20	2·50	2·75

Round Tea Pots.

No	300	400	500
Pints	3	4	5
Planished ... each,	$0·90	1·05	1·20
Nickel Plated ... "	1·60	1·80	2·00

Round Coffee Biggins.

No	103	104	105
Pints	3	4	5
Planished ... each,	$1·25	1·40	1·60
Nickel Plated ... "	2·25	2·50	3·00

Round Coffee Biggins.

Pints	1	2	3	4
Planished ... each,	$0·90	1·00	1·10	1·20
Nickel Plated ... "	1·60	1·80	2·00	2·25
Pints	5	6	7	8
Planished ... each,	$1·40	1·60	1·80	2·00
Nickel Plated ... "	2·75	3·00	3·50	3·75

Oval Coffee Biggins.

Pints	2	3	4	5
Planished ... each,	$1·15	1·25	1·40	1·60
Nickel Plated ... "	2 00	2·25	2·50	3·00
Pints	6	7	8	
Planished ... each,	$1·80	2·00	2·25	
Nickel Plated ... "	3·25	3·75	4·00	

Biggin Stands—Round or Oval.

No	2	3	4	5	6
Planished ... each,	$0·75	·80	·90	1·00	1·10
Nickel Plt'd .... "	1·50	1·60	1·80	2·00	2·20

Shaving Etnas.

No. 1, Planished ... per doz., $8·50

Pocket Etnas.

No. 10, Planished ... per doz., $12·00

Nurse Lamps.

No. 100, Planished ... per doz., $16·50

Etnas on Stand.

Pints	1½	2	3	4	5
Planished ... each,	$1·00	1·10	1·25	1·50	1·75
Nickel Plated .. "	2·00	2·50	2·75	3·00	3·50

Butter Dishes—With Enameled Butter Plate.

No. 4, Planished ... per doz., $10·00
No. 5, " ... " 12·00
No. 40, Nickel Plated ... " 15·00
No. 50, " ... " 18·00

Patent Seamless Scoops.

No	59	60	61	61½
Planished ... per doz.,	$2·00	2·75	3·75	5·75
No	62	63	64	
Planished ... per doz.,	$6·50	8·50	9·50	
No	61½	62	63	64
Brass ... per doz.,	$10·00	12·00	18·00	20·00

Pieced Scoops.

No	101	102	103	104	105	106
Planished .. per doz.	$2·75	3·50	4·50	5·25	8·00	9·00

Oyster Stew Pans.

No	5	10	20	30	40
Planished. ... each,	$0·80	·90	1·00	1·25	1·50

Milk or Rice Boilers—With Inside Boiler.

No	110	120	130	140
Planished ... each,	$1·35	1·50	1·75	2·00
Plansh'd & B. & W. Eml'd "	1·60	1·80	2·10	2·40

Tea Kettles.

No	70	80	90	100	110
Planished ... each,	$1·15	1·25	1·50	1·75	2·00

Seamless Round Kettles.

Quarts	1	2	3	4	6	8
Planished ... each,	$0·70	·85	1·00	1·25	1·50	1·75
Copper ... "	1·25	1·75	2·35	2·75	3·50	4·25

Seamless Round Kettles—For Hotel and Steamboat Use.

Quarts	21
Planished ... each,	$4·00

Seamless Round Saucepans.

Quarts	1	2	3	4	6	8
Planished ... each,	$0·70	·85	1·00	1·25	1·50	1·75
Copper ... "	1·25	1·75	2·35	2·75	3·50	4·25

Seamless Round Saucepans—For Hotel and Steamboat Use.

Quarts	21
Planished ... each,	$4·00

Seamless Tea Cups.

No. 50, Planished ... per doz. $3·35
No. 51, Nickel Plated ... " 5·75

Seamless Coffee Cups.

No	28	29	30
Planished ... per doz.	$3·25	3·75	4·25
Nickel Plated ... "	5·50	6·00	6·75

Planished Saucers.

No	5	10	20
Inches	5x⅝	5¾x¾	6¾x1
Per doz	$1·10	1·55	1·75

Nickel Plated Saucers.

No	6	11	21
Inches	5x⅝	5¾x¾	6¾x1
Per doz	$2·25	3·00	3·50

Seamless Tea Cups and Saucers.

No. 150, Planished, Cups with Saucers .. per doz. $4·90
No. 151, Nickel Plated, " " " 8·75

Seamless Coffee Cups and Saucers.

No	128	129	130
Planished, per doz. Cups with Saucers.	$4·80	5·30	5·80
No	228	229	230
Nickel Pl'd, per doz. Cups with Saucers.	$8·50	9·00	9·75

Children's Mugs.—Seamless.

No. 4, Planished ... per doz. $3·00
No. 5, Nickel Plated ... " 6·00

Pieced Cups.

No. 1, Planished ... per doz. $2·00

Candlesticks.

No. 10, Planished ... per doz. $2·00
No. 20, Planished ... " 2·50
No. 11, Nickel Plated ... " 4·25
No. 21, Nickel Plated ... " 4·50

Caster Frames.—Without Bottles.

No. 1, Planished ... each, $1·00
No. 2, Nickel Plated ... " 1·50

Seamless Tumblers.

No. 6, Planished ... per doz. $2·00
No. 7, Nickel Plated ... " 4·00

Seamless Pepper Boxes.

No. 5, Planished ... per doz. $2·00
No. 6, Nickel Plated ... " 4·00

Pepper Boxes.

No. 1, Planished ... per doz. $1·25

Flour Dredges.

No	3	4
Planished ... per doz.	$2·00	2·25

Seamless Flour Dredges.

No. 10, Planished ... per doz. $3·00
No. 20, Planished ... " 3·50
No. 11, Nickel Plated ... " 5·75
No. 21, Nickel Plated ... " 6·00

Seamless Charlotte Cups.—With Rims.

No. 1, 3 inch ... per doz. $2·50

Ice Cream Molds.—Patent.

No	101	102	103
Quarts	2	3	4
Each	$1·00	1·25	1·50

Oval Melon Molds.

No	2	3	4	5	6	7	8	9
Planished, each.	$0·60	·65	·70	·80	·90	1·00	1·15	1·35

Rice Molds.

No	1	2	3
Each	$1·00	1·15	1·30

Oval Jelly Molds.—Complete, with Rims.

Pints.	Indiv'l.	½	1	1½	2	3	4	6
Per doz.	$3·50	4·00	4·75	5·50	7·00	9·00	10·50	17·00

Jelly Presses.

No. 1 ... per doz. $8·50
No. 2, Improved ... " 9·50

Sponge Cake Pans.

No. 1, Per dozen Frames ... $2·50

Round Foot Warmers.

No. 2, Planished ... each, $1·15

Oval Foot Warmers.

No. 1, Planished ... each, $1·15

Bed Warmers.

No. 3, Planished ... each, $1·50

Carriage Foot Warmers.

No. 5, Planished ... each, $3·00

Seamless Cocoa-Shaped Dippers.—Patent applied for.

No. 52, Planished ... per doz. $5·00
No. 53, Nickel Plated ... " 8·00
No. 54, Nickel and Silver Plated, Porcelain Lined ... " ...

Liquor Mixers.

No	0	1	2
Planished ... per doz.	$1·75	2·00	2·25
Nickel Plated ... "	3·75	4·00	4·25

Cup Strainers.

No. 1, Planished ... per doz. $4·00
No. 2, Nickel Plated ... " 7·75

Holders for Round Bottles.

No. 2, Planished ... per doz. $5·00
No. 12, Nickel Plated ... " 10·00

Seamless Cheese and Cracker Bowls.

No. 1, Planished ... each, $2·50
No. 2, Nickel Plated ... " 4·50

Pickle Casters.—Complete, with Bottles.

No. 10, Planished ... each, $....
No. 20, Nickel Plated ... " ....

Patent Threaded Salt Spoons.

No. 10, Tinned, 3¾ inch ... per gross, $1·00

Patent Threaded Tea Spoons.

	Riveted.		Solid.	
No	300	305	310	320
Tinned ... per gross,	$3·25	3·50	4·00	4·25

"Case Lots" 12 gross of any one number.

Patent Threaded Table Spoons.

	Solid Strong.			Riveted.	
No	40	41	42	60	62
Tinned .. per gross,	$6·25	6·50	6·75	5·25	5·75

	Solid Ex. Strong.		
No	20	21	22
Tinned ... per gross,	$7·25	7·50	7·75

"Case Lots" 6 gross of any one number.

Patent Threaded Table Forks.

No. 24, Solid, Tinned ... per gross, $9·00

"Case Lots" 6 gross.

Patent Threaded Basting Spoons.

Solid.

Inch	10	12	14	16	18	20
Tinned ... per doz.	$1·20	1·40	1·60	1·80	2·00	2·20

Riveted.

Inch	10	12	14	16	18
Tinned ... per doz.	$1·10	1·20	1·40	1·60	1·80

"Case Lots" 24 dozen of any one size.

Forged Basting Spoons.

Inch	10	12	14	16	18
Tinned ... per doz.	$1·50	1·75	2 00	2·25	2·50
Blue and White Enameled "	2·75	3·00	3·50	4·00	4·50

"Case Lots" 24 dozen of any one size.

Superior Silver Steel Spoons—Oval Thread.—Patent.

No. 7, Table ... per gross, $12·50

"Case Lots" 6 gross.

No. 2, Tea ... per gross, $6·25

"Case Lots" 12 gross.

Superior Silver Steel Spoons—Olive.—Patent.

No. 8, Table ... per gross, $13·50

"Case Lots" 6 gross.

No. 3, Tea ... per gross, $6·75

"Case Lots" 12 gross.

Superior Silver Steel Table Forks—Oval Thread.—Patent.

No. 70 ... per gross, $15·00

"Case Lots" 6 gross.

Superior Silver Steel Table Forks—Olive.—Patent.

No. 80 ... per gross, $16·00

"Case Lots" 6 gross.

DEEP STAMPED WARE.

(Plain, Retinned, Galvanized and Enameled.)

Light Lipped Saucepans.

No	09	010	012	014	016
Tinned, per doz.	$1·75	2·25	2·75	3·25	3·75
No	018	020	022	024	026
Tinned, per doz ..	4·25	5·00	5·75	6·50	7·25

Strong Lipped Saucepans.

No	9	10	12	14	16	18
Tinned ... per doz.	$2·25	2·75	3·25	3·75	4·50	5·25
Marbleized ... "	2·50	3·00	3·50	4·25	5·31	6·37
Gray and White Enameled ... per doz.	3·50	4·00	5·00	6·00	7·00	8·00
Blue and White Enameled ... per doz.	4·50	5·00	6·00	7·00	8·00	9·00
No	20	22	24	26	28	
Tinned ... per doz.	6·00	7·00	8·00	9·00	10·00	
Marbleized ... "	7·44	8·50	9·56	11·70	12·75	
Gray and White Enameled ... per doz.	9·00	10·00	11·00	13·00	15·00	
Blue and White Enameled ... per doz.	10·00	11·00	13·00	15·00	17·00	

Shallow Stew Pans.

No	1	2	3	4	5
Tinned ... per doz.	$2·00	2·50	3·00	3·50	4 00
No		6	7	8	10
Tinned ... per doz.		5·00	6·00	6·50	8·00

Stew Pans.

No	16	18	20	22
Tinned ... per doz.	$4·50	5·00	5·50	6·00
Marbleized ... "	4·75	5·25	5·75	6·37
Gray and White, Enameled ... per doz.	7·00	8·00	9·00	10·00
Blue and White Enameled ... per doz.	8·00	9·00	10·00	11·00
No	24	26	28	30
Tinned ... per doz.	7·00	8·00	9·00	10·00
Marbleized ... "	7·75	8·50	10·63	12·50
Gray and White Enameled ... per doz.	11·00	12·00	13·00	14·00
Blue and White Enameled ... per doz.	12·00	13·00	14·00	15·00

Extra Strong Straight Saucepans.

No	10	12	14	16
Tinned ... per doz.	$3·50	4·50	5·50	7·00
Marbleized ... "	4·00	5·00	6·00	8·00
Gray and White Enameled ... per doz.	6·00	7·00	8·00	11·00
Blue and White Enameled ... per doz.	7·00	8·00	9·00	12·00
No		18	20	22
Tinned ... per doz.		8·50	9·00	10·50
Marbleized ... "		9·00	9·56	11·00
Gray and White Enameled ... per doz.		13·00	15·00	18·00
Blue and White Enameled ... per doz.		15·00	17·00	21·00
No		24	26	28
Tinned ... per doz.		11·00	13·50	14·00
Marbleized ... "		11·70	14·00	14·87
Gray and White Enameled ... per doz.		21·00	23·00	25 00
Blue and White Enameled ... per doz.		23·00	26·00	30·00
No		30	32	36
Tinned ... per doz.		16·50	20·00	24·00
Marbleized ... "		17·00	22·50	30·00
Gray and White Enameled ... per doz.		29 00	31·00	37·00
Blue and White Enameled ... per doz.		33·00	35·00	42·00

Saucepan Covers.

No	9	10	12	14	16	18	20
Per doz.	$0·40	·45	·60	·75	·85	1·05	1·35
No	22	24	26	28	30	32	36
Per doz.	1·50	1·75	2·00	2·40	3·00	3·50	4·00

Oyster Stew Pans.

No	0	1	2	3	4
Tinned, per doz.	$7·50	8·50	10·00	11·50	12·50

Covered Seamless Convex Saucepans.

No	101	102	103	104	106	108
Tinned ... per doz.	$6·00	9·00	10·50	12·00	15·00	18·00
Marb'z'd .. "	7·50	10·50	13·00	15·50	20·00	23·50
Gray and White Enam'ld .. ℔ doz.	8·00	11·50	14·00	16·50	23·50	26·00
Blue and White Enam'ld .. ℔ doz.	8·50	12·50	15·00	18·00	27·50	31·50

Milk or Rice Boilers.

No	1	2	3	4
Tinned ... per doz.	$12·00	14·00	16·00	20·00
Tinned & Enam'ld .. "	15·00	18·50	21·50	25·00

Round Cooking Pots.

No	12	14	16	18	20
Tinned ... per doz.	$6·75	7·50	8·00	9·00	10·00

Covered Seamless Convex Cooking Pots.

No	201	202	203	204	206	208
Tinned ... per doz.	$6·00	9·00	10·50	12·00	15·00	18·00
M'blized .. "	7·50	10·50	13·00	15·50	20·00	23·50
Gray and White Enam'ld .. ℔ doz.	8·00	11·50	14·00	16·50	23·50	26·00
Blue and White Enam'ld .. ℔ doz.	8·50	12·50	15·00	18·00	27·50	31·50

Glue Kettles.

No	10	14	18
Tinned or Japanned ... per doz.	$8·00	10·00	12·00
" (Inside Pots M'iz'd). "	8·50	10·50	12·50

Tea Kettles.

No	1	2	3	4	5	6
Tinned .. per doz.	$10·50	13·50	15·00	16·50	24·00	27·00

Copper Tea Kettles—Tinned Inside.

No	101	102	103	104	105	106
Each	$2·50	3·00	3·50	4·00	5·00	6·00

Tea Kettles.

No	7	8	9	10	11
Tinned ... per doz.	$8·50	9·50	10·75	12·00	14·00

Soup Boilers.

No	30	40
Tinned ... per doz.	$24·00	26·00
Marbleized ... "	26·00	28·00
Gray and White Enameled. "	30·00	34·00
Blue " " "	33·00	39·00

Seamless Hotel Soup Boilers.

No	50	60	70	80
Tinned ... each,	$4·00	6·00	8·00	10·00

Shallow Preserving Kettles.

No	016	018	020	022
Tinned ... per doz.	$4·00	4·50	5·50	6·50
Marbleized ... "	5·00	6·00	7·00	8·00
Gray and White Enameled ... per doz.	7·00	8·00	9·00	10·00
Blue and White Enameled ... per doz.	8·00	9·00	10·00	11·00
No	024	026	028	030
Tinned ... per doz.	$7·50	8·50	9·50	10·50
Marbleized ... "	9·00	10·00	11·00	12·00
Gray and White Enameled ... per doz.	11·00	12·00	13·00	14·00
Blue and White Enameled ... per doz.	12·00	13·00	14·00	15·00

Deep Preserving Kettles.

No	16	18	20	22	24
Tinned ... per doz.	$5·00	6·00	7·00	8·00	9·00
Marbleized ... "	6·00	7·00	8·07	10·00	10·63
Gray and White Enameled ... per doz.	8·00	9·00	11·00	12·00	13·00
Blue and White Enameled ... per doz.	9 00	10·00	12·00	13·00	15·00
No	26	28	30	32	36
Tinned ... per doz.	10·00	11·00	12·00	13·00	14·00
Marbleized ... "	12·00	12·76	14·88	18·00	20·00
Gray and White Enameled ... per doz.	15·00	16 00	18·00	20·00	22·00
Blue and White Enameled ... per doz.	16·00	18·00	20·00	22·00	25·00

Lipped Preserving Kettles.

No	160	180	200	220
Tinned ... per doz.	$4·00	4·50	5·50	6·50
Marbleized ... "	5·31	6·37	7·43	8·50
Gray and White Enameled ... per doz.	6·50	7·25	8·25	9·25
Blue and White Enameled ... per doz.	8·00	8·75	9·75	10·50
No		240	260	280
Tinned ... per doz.		7·50	8·50	9·50
Marbleized ... "		9·56	11·70	12·75
Gray and White Enameled ... per doz.		10·50	13·25	15·00
Blue and White Enameled ... per doz.		12·50	15 50	17·50

Fruit or Wash Kettles.

No	13	13½	14	15	16	17
Tinned ... ℔ doz.	$11·00	13·00	15·00	18·00	20·00	30·00
Galvanized .. "	12·00	14·00	17·00	20·00	22·00	33·00
Marbleized .. "	15·00	17 00	19·00	23·00	28·00	38 00
Gray & White Enameled .. per doz.	16 00	18·00	20·00	24·00	30·00	40·00
Blue and White Enameled .. per doz.	19 00	22·00	24·00	28·00	34·00	44·00

Water Pails.

No	4	5	6	7	8
Tinned ... per doz.	$7·00	8·00	9·00	10·00	11·00
Galvanized. "	8·00	9·00	10 00	11·00	12·00
Marbleized. "	11·00	12·00	13·00	14·00	15·00
Gray and White Enameled ... per doz.	12·00	13·00	14·00	15·00	16·00
Blue and White Enameled ... per doz.	14·00	15·00	16·00	17·00	19 00
No	8½	9	10	11	12
Tinned ... per doz.	13·00	15·00	18·00	20·00	30·00
Galvanized .. "	14·00	17·00	20·00	22·00	33·50
Marbleized .. "	17·00	19·00	23·00	28·00	38·00
Gray and White Enameled ... per doz.	18·00	20·00	24·00	30·00	40·00
Blue and White Enameled ... per doz.	22·00	24·00	28·00	34·00	44·00

Iron Bound Water Pails.

Gals	3½
Tinned ... per doz.	$12·00
Galvanized ... "	16·00

Chamber Pails.

No	2
Tinned ... per doz.	$24·00
Galvanized ... "	26·00
Japanned and Enameled ... "	36·00

Iron Bound Well Buckets.

No. 1, Galvanized ... per doz. $14·35

Planished Brass Kettles—Per pound.

Inches	7	8	9	10	11	12	13	14	15	17
Pounds	1	1¼	1¾	2	2¾	4	4½	5½	6	8

Milk Pails.

No. 5, Tinned ... per doz. $20·00

Cullenders.

No	10	12	14	16
Tinned ... per doz.	$2·50	3·00	3·75	4·75
Marbleized ... "	3·50	4·00	4 50	5·25
No	18	20	22	24
Tinned ... per doz.	5·50	6·25	7·00	8·00
Marbleized ... "	6·25	7·00	7·75	8·75

Improved Cullenders—With Feet Loose.

We always send Feet loose when not otherwise ordered. Feet fast, 15c. per doz. extra.

No	104	205	306	407
Tinned ... per doz.	$3·75	4·25	5·00	6·00
Marbleized ... "	6·50	7·25	8·25	10·00

Improved Medium Dish Pans.

Quarts	7	8	10	14
Tinned ... per doz.	$8 50	9·50	11·00	13·00
Galvanized ... "	10·00	11·00	13·00	15·50
Marbleized ... "	11·00	12·00	12·75	15·95
Gray and White Enameled ... per doz.	14·00	15·00	17·00	21·00
Blue and White Enameled ... per doz.	15·00	16·00	19·00	23·00
Quarts		17	21	30
Tinned ... per doz.		16·00	19·00	30·00
Galvanized ... "		18·50	22·00	33·00
Marbleized ... "		19·13	22·32	32·00
Gray and White Enameled ... per doz.		24·00	27·00	38·00
Blue and White Enameled ... per doz.		27·00	32·00	45 00

Improved Deep Dish Pans.

Quarts	7	8	10	14
Tinned ... per doz.	$8·50	9·50	11·00	13·00
Galvanized ... "	10·00	11·00	13·00	15·50
Marbleized ... "	11·00	12 00	12·75	15·95
Gray and White Enameled ... per doz.	14·00	15·00	17·00	21·00
Blue and White Enameled ... per doz.	15·00	16·00	19·00	23·00
Quarts		17	21	30
Tinned ... per doz.		16·00	19·00	30·00
Galvanized ... "		18·50	22·00	33·00
Marbleized ... "		19·13	22·32	32·00
Gray and White Enameled ... per doz.		24·00	27·00	38·00
Blue and White Enameled ... per doz.		27·00	32·00	45·00

Oval Dish Pans.

Quarts	15	18	22
Tinned ... per doz.	$15·00	18 00	22·00
Galvanized ... "	18·00	21·00	25·00
Marbleized ... "	22·00	25 00	28·00
Gray and White Enameled "	25·00	28·00	32·00
Blue and White Enameled "	30·00	35·00	40·00

Round Bottom Kitchen Pans.

No		60	80	100
Tinned ... per doz.		$6·00	7·00	8·00
Galvanized ... "		7·00	8·50	10·00
Marbleized ... "		8·00	9·50	11·00
Gray and White Enameled "		9·50	11·00	13·00
Blue and White Enameled "		11·00	13·00	15·00
No	120	140	170	210
Tinned ... per doz.	$12·50	14·50	17·50	20·50
Galvanized ... "	14·50	17 00	20·00	23 50
Marbleized ... "	15·00	18·00	21·00	24·00
Gray & White Enam'd "	18·50	22·50	25·50	28·50
Blue & White Enam'd "	20·50	24·50	28·50	34·50

Straight Milk Pans.

Quarts	½	1	1½	2	3	4
Plain Stamped .. per doz.	$0·90	1·10	1·25	1·50	1·75	2·55
Retinned ... "	1·20	1·50	1·75	2·00	2·25	3 15
Marbleized ... "	2·50	3·00	4·00	4·50	5·00	6·37
Quarts	5	6	8	10	12	
Plain Stamped ... per doz.	2·85	3 20	4·00	4·50	5 00	
Retinned ... "	3·50	3·85	4·75	5·25	5·75	
Marbleized ... "	7·00	7·96	9·00	10·84	12·00	

Extra Deep Light Pudding Pans.

No	15	16	17	18
Quarts	½	1	1½	2
Plain Stamped ... per doz.	$1·25	1·50	1·75	2·00
Retinned ... "	1·65	1·90	2·25	2·50
No	19	20	21	22
Quarts	3	4	5	6
Plain Stamped ... per doz.	2·50	2·80	3·25	3·75
Retinned ... "	3·00	3·50	4·00	4·50

Extra Deep Pudding Pans.

Quarts	½	1	1½	2	3
Tinned ... per doz.	$1·75	2·00	2·50	3·00	3·50
Quarts	4	5	6	8	10
Tinned ... per doz.	4·00	4·50	5·00	6·00	7·00

Handled Bread Pans.

No	5	10	15	20	30
Quarts	½	1	1½	2	3
Tinned ... per doz.	$2·25	2·50	3·00	3·50	4·00
No	40	50	60	80	100
Quarts	4	5	6	8	10
Tinned ... per doz.	4·50	5·00	5·50	6·50	7·50

Light Oval Pudding Pans.

No	1	2	3	4
Tinned ... per doz.	$2·75	3 50	4·25	5·00

The "Monitor" Nutmeg Graters.

Packed, one dozen in a box.

No. 1, Tinned ... per gross, $10·00

Fruit or Cake Baskets.

No. 1, Tinned ... per doz. $6 25

Oyster Chafing Dishes.

No. 1½ (Complete), Tinned ... per doz. $12·00
No. 1, Stands only (Patent Threaded), Tinned ... " 8·00

Gridirons.

No	6	7	8	9	10	11	12
Tinned ... per doz.	$4·25	4·75	5·25	6·00	7·00	8·00	8·50
Marbleized "	6·00	7·00	8·00	9·00	10·00	11·00	12·00

Improved Wire Broilers.

No	20	21	22	23	24	25
Tinned ... per doz.	$9·00	10·00	11·00	13·00	15·00	17·00

Epicure Broilers.

No. 1, Japanned ... per doz $20·00

American Broilers.

No. 2 .... per doz. $15·00

Funnels.

No	0	1	2	3	4	5
Tinned ....per doz.	$1·75	2·25	3·00	4·00	5·00	9·00

Patent Safety Funnels.

	Gill.	Pint.	Quart.
Tinned ....per doz.	$2·00	3·50	5·00

Kerosene Lamps.

No	1	2	3	4
Tinned ....per doz.	$3·85	....	3·25	....
Japanned "	....	4·75	....	4·25

Sugar Bowls

No	0	00	1
Tinned ....per doz.	$3·25	3·50	5·00

Patent Threaded Gravy Strainers.

No	5	6
Tinned	$1·15	1·25

Patent Threaded Gravy Strainers.

No	16	17	18	19
Tinned ....per doz.	$1·95	2·10	2·60	3·25

Gravy Strainers.

					Piece Tin.
No	36	37	38	39	2
Tinned...per doz.	$2·15	2·35	2·60	2·85	·75

Wood Handled Gravy Strainers.

No	26	27	28	29
Tinned ....per doz.	$2·25	2·50	2·85	3·75

Jelly Sieves.—Brass Wire Cloth.

No	16	20	24
Tinned ....per doz.	$5·40	7·25	9·30

Flour Sieves.—Tinned Wire Cloth.

No	1	2	4	6	8
Tinned ....per doz.	$4·50	6·00	7·50	9·50	11·00

Soup Strainers—Feet Fast.—Brass Wire Cloth.

	Plain.	Retinned.
No	200	20
Per doz	$3·50	4·00

Milk Strainers—Feet Fast.—Brass Wire Cloth.

	Plain.	Retinned.	
No	210	21	22
Per doz	$4·00	4·25	5·25

Rimmed Strainers.—Perforated Tin.

No	120	140	160	180
Tinned ....per doz.	$2·50	3·25	4·00	5·00

Salad Drainers.

No. 20, Tinned .... per doz. $6·00

Improved Wash Basins.

No	12	13	14	16	10	11
Plain Stamped, without rings ....per doz.	$1·75	2·25	2·55	4·00	1·65	1·75
Retinned, with rings "	2·60	3·10	3·40	5·00	2·30	2·60
Galv'ized, with rings "	3·00	3·25	3·75	5·25	..	..
Brass, with r'gs "	6·50	7·50	8·50	..	..	..

No	024	026	028	030	032
Tinned, with rings ..per doz.	$3·00	3·50	4·00	4·50	5·00

No	22	24	26	28	30	32	34
Tinned, with rings, per doz	$3·25	3·30	4·25	4·75	5·50	6·25	7·75
Marbleized, per doz	5·00	5·50	6·00	6·37	8·50	9·56	12·30
Gray and White Enameled, with Rings, per doz.	6·50	7·00	8·00	9·00	10·00	12·00	14·00
Blue and White Enameled, with Rings, per doz.	7·50	8·00	9·00	10·00	12·00	14·00	16·00

Ring Handled Wash Bowls.

No	101	102	103	104
Plain Stamped ..per doz.	$3·00	3·50	4·00	5·75
Retinned "	4·00	4·50	5·00	7·00

Light Wash Bowls—With Feet Loose.

We always send Feet loose when not ordered fast.

Feet fast, 15 cents per doz. extra.

No	010	020	031	035	040
Plain Stamped, without Rings ....per doz.	$1·90	2·40	2·80	3·30	3·80
Retin'd, with R'gs "	2·85	3·35	3·80	4·40	5·00

Improved Wash Bowls—With Feet Loose.

We always send Feet loose when not ordered fast.

Feet fast, 15 cents per doz. extra.

No	100	200	300	400
Pl'n St'ped, without R'gs, per doz.	$2·15	2·65	3·00	4·75
Retinned, with Rings "	3·10	3·60	4·00	6·00

Tubed Cake Pans.

No	31	32	34	36
Tinned ....per doz.	$2·25	3·00	4·00	5·00

Extra Deep Tubed Cake Pans.

No	43	44	45	46
Tinned ....per doz.	$4·00	4·50	5·00	5·50

Tubed Cake Molds.

No	52	53	54
Tinned ....per doz.	$3·50	4·00	4·50

Octagon Cake Molds.

No	73	74	75	76
Tinned ....per doz.	$4·50	5·25	6·00	7·00

Turk's Head Cake Molds.—Patented.

No	61	62	63	64
Tinned ....per doz.	$8·00	10·00	12·00	15·00

Copper Turk's Head Molds.—Patented.—Tinned Inside.

No	161	162	163	164
Per doz	$12·50	15·00	17·50	20·00

Turban Molds.—Patented.

No	86	87	88	89
Tinned ....per doz.	$4·00	4·50	5·25	6·00

Jelly Molds.—Patented.

No	81	82	83
Tinned ....per doz.	$7·00	9·00	11·00

Pudding Molds.—Patented.

No	91	92	93
Tinned ....per doz.	$10·00	12·00	14·00

Oval Shirred Egg Plates.

No. 1, Tinned .... per doz. $1·15

Egg Plates.

No	4	5	6	7	8	10
Tinned ....per doz.	$1·30	1·50	1·75	2·00	2·20	2·80
Marbleized "	1·75	2·00	2·50	3·50	4·00	5·00
Gray and White Enameled "	2·50	2·75	3·50	4·50	5·50	7·00
Blue and White Enameled "	3·00	3·50	4·50	5·50	7·00	8·50

Pie Plates.—French Pattern.

No	25	26
Retinned ....per doz.	$1·70	1·80

Pie Plates.—American Pattern.

Inch	9	10
Marbleized ....per doz.	$2·50	3·00

Dinner Plates.

No	23	24
Tinned ....per doz.	$1·70	1·80
Marbleized "	2·00	3·00
Gray and White Enameled "	2·50	3·50
Blue and White Enameled "	3·25	4·50

Soup Plates.—9x1½ inches.

No	20
Tinned ....per doz.	$2·40
Marbleized "	4·00
Gray and White Enameled "	5·50
Blue and White Enameled "	7·00

Patent Biscuit Pans.

	8 Cups to the Card.		12 Cups to the Card.	
No	0	1	0½	1½
Tinned ..per doz. Cards,	$5·50	6·00	8·00	9·00

Patent Muffin Pans.

	8 Cups to the Card		12 Cups to the Card.	
No	4	5	4½	5½
Tinned ..per doz. Cards,	$6·00	7·50	9·00	11·00

Patent Corn Cake Pans.

	8 Cups to the Card.	12 Cups to the Card.
No	7	7½
Tinned ..per doz. Cards,	$8·50	12·00

Patent Cookey Pans.

	8 Cups to the Card.		12 Cups to the Card.	
No	9	10	9½	10½
Tinned ..per doz. Cards,	$5·00	4·50	7·50	6·75

Muffin Cups.

No	04	05	06	07
Plain Stamped ....per doz.	$0·35	·45	·60	·60
Retinned "	·50	·60	·75	·75

California Cups.

No	2	4
Plain Stamped ....per doz.	$1·25	1·50
Retinned "	1·75	2·00

Soup Bowls.

No. 105, Marbleized .... per doz. $3·50
No. 115, Gray and White Enameled .. " 4·00
No. 125, Blue and White Enameled .. " 5·00

Straight Drinking Cups.

No	14	15	16	17
Tinned ....per doz	$1·45	1·70	1·85	2·00

Drinking Cups.

No	08	09	010	011	
Tinned, Light ....per doz.	$1·20	1·40	1·60	1·80	
No	7	8	9	10	11
Tinned, Strong ..per doz.	1·00	1·35	1·50	1·75	2·00

Tea Cups.

No. 40, Tinned .... per doz. $2·00
No. 45, Blue and White Enameled .... " 4·00

Coffee Cups.

No	18	19	20
Tinned ....per doz	$2·50	2·75	3·00
No	68	69	70
Blue and White Enameled, per doz.	3·75	4·00	4·25

Saucers.

No	0	1	2
Tinned ....per doz.	$0·60	0·85	1·35
Blue and White Enameled "	3·00	3·25	3·50

Toy Cups and Saucers.

No. 00, Tinned, Cups with Saucers ... per doz. $1·25

Tea Cups and Saucers.

No. 140, Tinned, Cups with Saucers ... per doz. $2·85
No. 145, Blue and White Enameled, Cups with Saucers .... " 7·25

Coffee Cups and Saucers.

No	118	119	120
Tinned, Cups with Saucers ...per doz.	$3·35	3·60	3·85
No	218	219	220
Blue and White Enameled, Cups with Saucers ....per doz.	7·00	7·25	7·50

Children's Mugs.

No. 3, Tinned .... per doz. $2·00

Miners' Cups.

No. 100, Tinned .... per doz. $4·25

Skewers.

No. 1, Tinned .... per doz. sets $2·00

Potato Mashers.

No. 1, Tinned .... per doz. $2·50

Spice Scoops.

No	0	00	000
Tinned ....per doz.	$0·65	0·85	1·00

Wood Handled Candy Scoops.

No. 24, Tinned .... per doz. $1·50

Covered Candy Scoops.—Wood Handled.

No. 25, Tinned .... per doz. $2·00

Patent Family Scoops.—Tinned Flat Handles.

No	34	35	36
Tinned ....per doz.	$1·25	1·50	1·75

Patent Family Scoops.—Wood Handled.

No	37	38	39
Tinned ....per doz.	$1·75	2·00	2·25

Patent Thumb Scoops.

No	12	14	16
Tinned ....per doz.	$1·25	1·50	1·75

Patent Tea Scoops.

No	13	15	17
Tinned ....per doz.	$1·25	1·50	1·75

Patent Grocers' Scoops.

No	02	03	04	06
Tinned ....per doz.	$3·00	3·50	4·50	6·50

Patent Grocers' Scoops.

No	2	3	4	5
Tinned ....per doz.	$4·00	4·50	5·50	7·50

Patent Grocers' Scoops.—Wood Handles.

No	7	8	9	10
Tinned ....per doz.	$4·00	4·50	5·50	7·50

Patent Covered Grocers' Scoops.—Metal Handles.

No	20	30	40	50
Tinned ....per doz.	$6·00	7·00	8·00	10·00

Patent Covered Grocers' Scoops.—Wood Handles.

No	70	80	90	100
Tinned ....per doz.	$6·00	7·00	8·00	10·00

Salt and Pepper Stands.

No. 1, Tinned .... per doz. $1·25

Soap Dishes.

No. 1 Tinned .... per doz. $2·00

Oval Soap Dishes.

No	2	3
Tinned ....per doz.	$1·50	2·25

Marking Pots.

No. 1, Plain Stamped .... per doz. $5·50
No. 10, Retinned .... " 6·50

French Coffee Filters.—Patent applied for.

This simple filter will fit any of the three ordinary sizes of Family Coffee Pots, and is indispensable in making superior French coffee.

No 1, Tinned .... per doz. $6·50

Dinner Kettles.

No. 3, Tinned .... per doz. $12·00

Paste Jaggers.—Tinned.

No. 1, Wood Handled .... per doz. $2·00
No. 2, With Metal Wheel at each end .. " 2·50
No. 10, Tinned, with Single Wheel .... " 0·60

Toy Kettles.

No. 1, Tinned .... per doz. $1·50

Tin Toys.

Sixteen Pieces to a Set. Nine Sets to the Gross. Packed, one Gross in a Box.

No. 1, Assorted .... per gross $0·60

Tin Rattles and Whistles.

No. 1 .... per gross $2·50

Tobacco Boxes.

No. 1, Tinned .... per gross, $18·00
No. 10, Nickel Plated .... " 36·00
Packed—One dozen in a box.

Pocket Match Boxes.

No. 5, Tinned .... per gross, $12·00
No. 10 Japanned, Assorted Colors .. " 15·00
Packed—One dozen in a box.

Animal Cake Cutters.

No	1	2	3
	Small.	Medium.	Large.
Tinned ....per gross,	$6·85	10·00	12·00

Packed—One dozen assorted in a box.

Patent Threaded Egg Slicers.

No. 25, Tinned .... per doz. $0·75

Egg Whips.

Tinned Handles .... per gross, $9·45
Wood Handles .... " 14·00

Patent Threaded Egg Poachers.

No. 1, Tinned .... per doz. $1·75

Propeller Egg Beaters.—Patent applied for.

Per gross .... $60·00

Dover Egg Beaters.

Per gross .... $90·00

Patent Threaded Sugar Sifters.

No. 7, Tinned .... per doz. $1·00

Oyster or Ice Ladles.

Patent Threaded Handles.—Tinned.

No. 50, Plain .... per doz. $0·75
No. 55, Pierced .... " 0·75

Shallow Ladles.—Patent Threaded Handles.

No	1	2	3	4
Tinned, Plain ....per doz.	$1·25	1·40	1·50	1·65
Tinned, Pierced "	1·35	1·50	1·60	1·75

Shallow Ladles—Wood Handles.

No	01	02	03	04
Tinned, Plain ..per doz.	$1·75	1·85	1·95	2·05
Tinned, Pierced "	1·85	1·95	2·05	2·15

Patent Threaded Ladles.

No	14	15	16	17	18	19
Tinned, Plain ..per doz.	$1·30	1·50	1·75	2·00	2·25	2·60
Tinned, Pierced "	1·40	1·60	1·85	2·10	2·35	2·60

Flat Handled Ladles.

Plain.

No	8	9	10	11	12	13
Tinned ....per doz.	$1·30	1·50	1·75	2·00	2·25	2·50
Blue and White Enameled "	3·00	3·25	3·50	3·75	4·25	4·50

Pierced.

No	8	9	10	11	12	13
Tinned ....per doz.	$1·40	1·60	1·85	2·10	2·35	2·60
Blue and White Enameled "	3·10	3·35	3·60	3·85	4·35	4·60

Wood Handled Ladles.

No	20	21	22	23	24	25
Tinned, Plain ..per doz.	$1·75	2·00	2·25	2·50	2·75	3·00
Tinned, Pierced "	1·85	2·10	2·35	2·60	2·85	3·10

Patent Threaded Soup Ladles.

No. 25, Tinned .... per doz. $2·50

Patent Threaded Soup Ladles.

No	38	39
Tinned ....per doz.	$1·50	1·75

Forged Handled Soup Ladles.

No. 40, Tinned .... per doz. $1·25

Pump Ladles.

	Light.			
No	10	11	12	13
Tinned ....per doz.	$1·25	1·50	1·75	2·00

	Strong.	Ex. Strong.	
No	13	10	11
Tinned ....per doz.	$2·25	4·00	4·25

Wood Handled Soup Ladles.

No	29	30
Tinned ....per doz.	$2·00	2·25

Wood Handled Soup Ladles.

No	9kkk	9kk	9k	9
Britannia ....per doz.	$3·50	4·00	4·25	4·50
No	90kkk	90kk	90k	90
Nickel Plated ...per doz.	$4·50	5·00	5·25	5·50

Extra Strong Ladles.

No	10	11	12	13
Tinned, Plain ..per doz.	$2·00	2·25	2·50	2·75
Tinned, Pierced "	2·10	2·35	2·60	2·85

Navy Ladles.

No	1	2	4
Tinned ....per doz.	$4·50	5·50	9·00

Forged Handled Dippers.

No	100	101
Tinned ....per doz.	$1·45	1·60

Round Handled Cocoa Shaped Dippers.—Extra Deep.

No	36	37	38
Tinned ....per doz.	$2·50	2·75	3·00

Wood Handled Cocoa Shaped Dippers.—Extra Deep.

No	41	42	43	51
Tinned ....per doz.	$2·75	3·00	3·25	3·25

Patent Threaded Cup Dippers.

No	14	15	16	17
Tinned ....per doz.	$2·00	2·25	2·50	2·75

Flat Handled Cup Dippers.

No	8	9	10	11
Tinned ....per doz.	$2·00	2·25	2·50	2·75

Wood Handled Cup Dippers.

No	20	21	22	23
Tinned ....per doz.	$2·25	2·50	2·75	3·00

Patent Threaded Flaring Dippers.

No	116	117	118	119
Tinned ....per doz.,	$2·25	2·50	2·75	3·00

Flat Handled Flaring Dippers.

No	110	111	112	113
Tinned ....per doz.,	$2·25	2·50	2·75	3·00
Blue & White Enml'd... "	3·50	4·00	4·50	5·00

Wood Handled Flaring Dippers.

No	122	123	124	125
Tinned ....per doz.,	$2·50	2·75	3·00	3·25

Dipper Bowls.

No	0	1	2	3
	½ pt.	¾ pt.	1 pt.	1½ pt.
Plain Stamped ..per doz.	$0·50	·65	·75	·85
Retinned "	·75	·95	1·05	1·20
Handles "	·35	·35	·35	·45
No	4	5	6	
	1 qt.	2 qts.	2½ qts.	
Plain Stamped ....per doz.,	$1·00	1·25	1·75	
Retinned "	1·40	1·75	2·25	
Handles "	·45	·55	·70	

Copper or Brass Dipper Bowls.

2 Qts. Brass .... per lb., $0·80
2 Qts. Copper .... " ·85

Water Dippers.

No	0	1	2	3
	½ pt.	¾ pt.	1 pt.	1½ pt.
Plain Stamped ..per doz.	$0·90	1·05	1·15	1·30
Retinned "	1·15	1·35	1·45	1·65
No	4	5	6	
	1 qt.	2 qts.	2½ qts.	
Plain Stamped ....per doz.,	$1·50	1·85	2·50	
Retinned "	1·90	2·35	3·00	

Laundry Dippers.

No. 20, Retinned, 3 quarts .... per doz., $5·00

Milk Man's Dippers.

No. 7, Tinned .... per doz., $3·00

Milk Skimmers.

	Plain.	Pierced.
No	30	35
Tinned ....per doz.,	0·45	·45

Patent Threaded Improved Milk Skimmers.

No. 50, Plain .... per doz., $1·00
No. 55, Pierced .... " 1·00

Wood Handled Milk Skimmers—Improved.

	Plain.	Pierced.
No	40	45
Tinned ....per doz.,	$1·25	1·25

Cream Dippers.

No. 7 .... per gross, $8·40

Cairn's Milk Skimmers.

No. 50 .... per gross, $18·00

Preserve Skimmers.

No. 1, Tinned .... per doz., $1·50
No. 2, Brass .... " 2·75
No. 3, Blue and White Enameled ..... " 3·25

Patent Threaded Flat Skimmers.

No	16	17	18	19	20	21
Tinned ..per doz.,	$1·25	1·50	1·75	2·00	2·25	2·50

Flat Handled Flat Skimmers.

No	9	10	11	12
Tinned ....per doz.,	$1·00	1·25	1·50	1·75
Blue & White Eml'd, "	2·50	2·75	3·00	3·50
No	13	14	15	
Tinned ....per doz.,	$2·00	2·25	2·50	
Blue and White Enml'd "	3·75	4·25	4·50	

Wood Handled Flat Skimmers.

No	22	23	24	25	26	27
Tinned ...per doz.	$1·75	2·00	2·25	2·50	2·75	3·00

Patent Threaded Cake Turners.

No	15	16
Tinned ....per doz.,	$1·10	1·25

Flat Handled Cake Turners.

No	13	14
Tinned ....per doz ,	$1·10	1·35

Wood Handled Cake Turners.

No	17	18
Tinned ....per doz.,	$1·40	1·50

Wood Handled Cake Turners—Steel Blades.

No	19	20
Per doz	$1·50	1·75

Two Pronged Flesh Forks.

Inch	12	15	18	20	22	24
Tinned ....per doz.	$1·75	2·00	2·50	3·00	3·50	4·00

Three Pronged Flesh Forks.

Inch	12	15	18	20	22	24
Tinned ....per doz.	$2·00	2·25	2·75	3·25	3·75	4·25

Two Pronged Flesh Forks—Wood Handled.

Inch	13	16
Tinned ....per doz.	$2·00	2·25

Three Pronged Flesh Forks—Wood Handled.

Inch	13	16
Tinned ....per doz.	$2·50	2·75

Patent Wood Handled Preserve Spoons.

Inch	10	12	15
Tinned ....per doz.	$1·45	1·60	1·75

Wood Handled Preserve Spoons.

Inch	14	16	18
Tinned ....per doz.	$1·50	1·65	1·75

French Safety Chain.

No. 1. Tinned (in packages of 36 feet), per foot. 6 cents

French Chain, "S" Pattern.

No. 2. Tinned (in packages of 36 feet), per foot. 4 cents

Meat Hooks to Drive.

No	5	10	20	30	40	50
Tinned ..per gross.	$2·75	3·30	3·50	4·75	5·00	6·50

Tea or Coffee Pot Spouts.

No	1	2	3
Tinned ....per gross.	$8·50	11·00	12·00

Packed in Boxes of "¼ Gross" each.

Malleable Saucepan Handles—Tinned.

Inch, 7, 8, 10, 11 .... per pound. 25 cents

Saucepan Handles.

No	1	2	3	4	5	6
Tinned ....per doz.	$0·45	·55	·65	·75	·85	·95

Oval Tin Kettle Ears.

					Rivet Holes.	
No	10	20	30	40	50	55
Per gross pairs	$0·88	1·00	1·20	1·50	1·80	1·90

Packed in Boxes of "1 Gross Pairs."

Tin Ears.

No	01	02	03	04	05
Per gross pairs	$0·88	1·00	1·40	1·75	2·25

Packed in Boxes of "1 Gross Pairs."

L. & G. Tea Kettle Ears—New Pattern.

No	44	55	66	77
Tinned ..per gross pairs.	$2·25	2·50	3·00	3·50

Packed in Boxes of "½ Gross Pairs."

L. & G. Kettle Ears—Pattern Improved.

No	1		2	3
Tinned ..per gross pairs.	$1·00		1·25	1·50
No	4	5	6	7
Tinned. per gross pairs.	1·75	2·00	2·50	3·00

Extra Strong.

No	100		200	300
Tinned ..per gross pairs.	$1·25		1·50	2·00
No	400	500	600	700
Tinned ..per gross pairs.	2·50	3·00	3·75	4·25

Packed in Boxes of "½ Gross Pairs."

Coal Hod Ears.

No. 1. Bright Iron .... per gross pairs. $5·00
Packed in Boxes of "½ Gross Pairs."

Gas Pipe Straps—Tinned.

Inches, ¼, ⅜, ½, ¾, 1, 1¼, 1½, 2 ..per pound. 25 cts.

Tin Hinges.

No. 1 .... per gross. $1·00

Soldering Coppers.

No	0	1	2	3	4	5	6	7	8	9	10
Price ..per pound.	..	..	..	..	..	..	..	..	..	..	..

Melting Ladles.

Inch	2½	3	3½	4
Bright Iron ....per doz.	$1·75	2·00	2·25	2·50
Inch	4½	5	5½	6
Bright Iron ....per doz.	$3·00	3·50	4·00	4·50

Oval Omelet Pans.

No. 1, Tinned .... per doz. $4·50

Oval Fry Pans.

No	10	12	14
Tinned ....per doz.	$4·50	5·50	6·50
No	110	112	114
Bright Iron ....per doz.	$5·50	7·00	8·00

Deep Fry Pans—French Pattern.

No	0	1	2	3	4
Polished ....per doz.	$3·00	3·75	4·25	4·75	5·25
Tinned "	3·50	4·00	4·50	5·00	5·50
Marbleized "	4·50	5·10	5·74	6·37	7·00
Gray and White, Enameled "	5·00	5·75	6·25	6·75	7·50

No	5	6	7	8
Polished ....per doz.	$6·00	7·00	8·00	9·00
Tinned "	6·50	7·50	9·00	10·00
Marbleized "	8·29	9·56	10·00	11·00
Gray and White, Enameled "	8·50	10·00	11·00	12·25

Long Handled Deep Fry Pans.

No	4	5	6	7	8
Polished ...per doz.	$8·00	9·00	10·00	11·00	12·50

Deep Hammered Fry Pans—English Pattern.

No	0	1	2	3	4
Bright ....per doz.	$4·00	4·50	5·00	5·50	6·00
Tinned "	4·50	5·00	5·50	6·00	7·00
No	5	6	7	8	
Bright ....per doz.	$7·00	8·00	9·00	10·00	
Tinned "	8·00	9·00	10·00	11·50	

Round Hammered Iron Pans—English Pattern.

Inch	6	7	8	9	10	11	12
Bright ....per doz.	$1·75	2·25	2·75	3·25	4·00	5·00	6·00

Oval Hammered Iron Pans—English Pattern.

Inch	9 x 7½x2¼	10 x 8¾x2¼	11 x 9½x2½	12 x 10¾x2⅞	13 x 11½x3¼
Per doz...	$3·00	4·00	5·00	6·25	6·75
Inch	14 x 12¾x3¼	15 x 13x3¼	16 x 13¾x3¼	17 x 14¾x3¼	18 x 15¾x3⅞
Per doz...	$7·50	8·50	9·25	12·00	13·00

Seamless Oblong Iron Pans—American Pattern.

Inch	13 x 9x2½	14 x 9½x2½	15 x 10½x2½
Bright ....per doz.	$6·50	7·25	8·25
Marbleized "	10·00	12·00	13·50
Inch	16 x 11x2½	18 x 12½x2¾	20 x 13½x2¾
Bright ....per doz.	$9·50	11·50	13·50
Marbleized "	15·00	18·00	21·00

Shallow Oval Pans.

No	109	110	112	114	116	118
Bright Iron ..per doz.	$4·25	4·75	5·75	6·75	7·50	9·50
Marbleized "	6·50	7·50	9·00	11·00	12·25	15·50
Gray & White, Enameled "	7·50	8·75	10·25	12·25	14·00	17·00

Extra Deep Oval Pans.

No	85	100	120	140	160
Bright Iron ....per doz.	$3·25	3·50	4·50	5·50	6·50
Marbleized "	5·50	6·00	7·50	9·00	11·00
Gray and White, Enameled "	6·00	6·50	8·25	10·00	12·00

Bordered Baking Pans.

No	8	9	10	11	12
Polished ....per doz.	3·00	3·50	4·00	4·50	5·00

Miners' Gold Pans.

No. 41, Unpolished .... per doz. $8·00
No. 42, Polished .... " 9·60
No. 43, Russia Iron .... " 13·20

Bordered Stove Skillets.

No	8	9	10	11	12
Polished ....per doz.	$3·50	4·00	5·00	6·00	6·50

"Clifton" Bread Raisers.

No. 1, Japanned and Enameled .... each, $5·00

Round Sheet Iron Boilers.

Gallons	1	2	3	4	5	6	8	10
Japanned and Tinned. each,	$1·70	1·90	2·05	2·40	2·75	3·10	4·10	5·15

Oval Sheet Iron Boilers.

Gallons	1	2	3	4	5	6	8	10
Japanned and Tinned. each,	$1·80	2·05	2·40	2·75	3·10	3·60	4·45	5·50

Ham Boilers.

No. 18, Japanned and Tinned .... each, $4·20
No. 21, " " " .... " 5·25

Fish Kettles

No	18	20	22	24
Japanned and Tinned ...each,	$3·60	3·95	4·45	5·10

L. & G. Coffee Mills—Patented.

No. 11, Tinned Iron Hopper .... per doz. $12·50
Packed—In Boxes of "½ dozens."

L. & G. Coffee Mills.

No. 125, Patent Tinned Iron Hopper ..per doz. $13·50
Packed—In Boxes of "½ dozens."

Coffee Roasters.

No. 1, without Crank, Japanned ..... per doz. $10·00
No. 2, with Crank, " " 12·00

Fire Carriers.

No. 18, Japanned .... per doz. $8·00

Saw Knives.

No. 1 .... per doz. $7·25

L. & G. Cook Knives.

Inch	4	5	6	7	8	9	10	11	12
Per doz.	$4·00	4·50	5·00	7·09	8·50	9·50	10·00	11·00	12·00

Sabatier Cook Knives.

Inch	4	5	6	7	8
Per doz	$4·50	5·50	7·50	9·50	10·50
Inch		9	10	11	12
Per doz		12·50	13·50	14·50	16·50

Curry Combs—Patent Threaded Iron Handles—Open Backs.

No. 40, Japanned, 6 Bar .... per doz. $1·10
Put up in paper boxes of 1 doz. "Case Lots" 12 doz.

Curry Combs—Open Backs.

No	50	60	80
	6 Bar	6 Bar	8 Bar
Japanned ....per doz.	$1·25	1·75	2·25

No. 150, Tinned, 6 Bar .... per doz. 1·50
Put up in paper boxes of 1 doz. "Case Lots" 12 doz.

Curry Combs—Closed Backs.

No	61	73	81	82
	6 Bar	7 Bar	8 Bar	8 Bar
Japanned ....per doz.	$2·00	2·50	2·50	3·50

No. 173. Tinned, 7 Bar .... per doz. 2·75
Put up in paper boxes of 1 doz. "Case Lots" 12 doz.

Coal Shovels—Wood Handled.

No	0B	B	100	200
Japanned ....per doz.	$0·92	1·25	1·75	2·00

No. 300, Tinned .... per doz. 2·25

Coal Scoops.

No. 500, Japanned .... per doz. $3·50

Coal Shovels.

No	C	A	1	2
Japanned ....per doz.	$0·92	1·25	1·50	1·75

Coal Sifters.

No	000	6	7
Japanned ....per doz.	$1·10	1·60	1·85

Patent Diamond Shovels.

	Japanned.	Tinned.
No	30	130
Per doz	$1·25	1·75

Patent Double Diamond Shovels.

	Japanned.	Tinned.
No	35	135
Patent Hollow Handles ..per doz.	$1·50	2·00

Coal Shovels—Long Handled.

No	04	4	5
Japanned ....per doz.	$2·00	2·25	2·50

Fire Shovels—Long Handled—Extra Strong.

No	128	129	130	131
Japanned ....per doz.	$2·25	2·75	3·25	4·00

Fire Sets.

Extra Strong Shovels and Tongs.

No	228	229	230
Japanned ....per doz. pairs,	$6·50	7·50	8·50

Extra Strong Shovels, Tongs and Pokers.

No	328	329	330
Japanned, with bent pokers, per doz. sets	8·25	9·50	10·75
No	328½	329½	330½
Japanned, with square pokers, per doz. sets	8·75	10·00	11·25

Cover Lifters.

No	1	2	3
Tinned ....per doz.	$1·25	1·50	2·00

Pokers.

Square.—Extra Strong.

No	8	9	10
Japanned ....per doz.	$2·25	2·50	2·75

Bent.—Extra Strong.

No	18	19	20
Japanned ....per doz.	$1·75	2·00	2·25

Spring Tongs

No	39	40
Japanned ....per doz.	$2·75	4·00

Fire Tongs.—Extra Strong.

No	48	49	50
Japanned ....per doz.	$4·25	4·75	5·25

Match Strikers.

No	30	3
Japanned ....per doz.	$0·75	2·50

Packed in Boxes of 1 dozen.

Round Match Safes.

No. 4, Japanned .... per doz. $3·50

Square Match Safes.

No. 1, Japanned .... per doz. $4·25

Match Safes.

No. 2, Japanned .... per doz. $3·00

Pepper Boxes.

	Small.	Large.
Japanned ....per gross,	$3·60	4·80

Flour Dredges.

	Small.	Large.
Japanned ....per gross,	$7·20	9·00

Potato Slicers.

No. 1, Japanned .... per doz. $15·00

Parker's Patent Frame Lanterns.

No. 1, Japanned, with fixtures for Oil and Candle .... per doz. $6·00
Lamp fastened on bottom of Lantern.
No. 2, Japanned, with fixtures for Oil and Candle .... per doz. $8·50
Lamp inserted in the bottom of Lantern by the use of Brass Springs on side of Lamp.
Extra cost of Kerosene fixtures for Nos. 1 or 2 .... per doz. 25 cts. net

Scholars' Companions.—Decorated—Assor'd Colors.

No. 1, Japanned .... per doz. $2·75

Lunch Boxes.—Decorated—Assorted Colors.

No. 1, Japanned .... per doz. $4·00
Imitation of Morocco Leather.

Spittoons.

No. 30, Japanned, Bronze Stripes ..... per doz. $3·50
No. 40, " " ..... " 3·00
No. 3, " " ..... " 3·25
No. 1, " " ..... " 4·75
No. 2, " " ..... " 5·50

Cuspadores.—Assorted Colors—Bronze Striped.

No	5	10	15	20
Colors		Blue	Green	Choc'te
Japanned ..per doz.	$8·00	12·00	12·00	12·00
No		25	26	27
Colors		Red	White	Black
Japanned ....per doz.		$12·00	12·00	12·00

Patent "Eureka" Cuspadores.

Can be turned upside down, or at any angle, without spilling a drop of contents.

Assorted Colors—Bronze Striped.

No	100	150	200
Colors	Blue	Green	Chocolate
Japanned ....per doz.	$16·00	16·00	16·00
No	250	260	270
Colors	Red	White	Black
Japanned ....per doz.	$16·00	16·00	16·00

Decorated—Assorted Colors.

No	300	350	400
Colors	Blue	Green	Chocolate
Japanned ... per doz.	$18·00	18·00	18·00
No	450	460	470
Colors	Red	White	Black
Japanned ....per doz.	$18·00	18·00	18·00

The "Dixie" Candlesticks.

No. 0, Japanned .... per gross, $6·00

Candlesticks.

No. 20, Without H'dles, Planished. per gross, $11·40
No. 21, With Ring H'dles, " .. " 12·90

Candlesticks.

	Japanned.		Plain.	
No	1	2	01	02
With Ring Handles ...per gross,	$8·40	7·80	7·80	6·90

Deep Candlesticks.

	Japanned.		Plain.	
No	5	6	05	06
Per gross	$18·00	16·20	15·60	13·80

Dust Pans.

No. 1, Japanned .... per gross, $24·00

Covered Dust Pans.

No. 2, Japanned .... per gross, $45·00

Bread Trays, Decorated—Assorted Colors.

No	10	20
Japanned ....per doz.	$8·50	12·75

Crumb Pans and Scrapers, Decorated—Assorted Colors.

Japanned .... per dozen sets, $9·00

Crumb Pans and Brushes, Decorated—Assorted Colors.

Japanned .... per dozen sets, $9·25

Japanned Oblong Tea Trays—Extra Strong.

Pattern No. 1 Filleted	Inch.	18	20	22	24	26	28
	⅌ dz.	$8·50	10·00	11·50	13·50	16·00	19·00

Japanned Oblong Tea Trays—Extra Strong.

Pattern No. 2 Leaf Design.	Inch.	18	20	22	24	26	28
	⅌ dz.	$9·50	11·00	12·50	14·50	17·00	20·00

Ice Pitchers, Decorated—Assorted Colors.

Enameled, Colors and Sizes Assorted, 1st Choice, Japanned .... per doz. $18·00
Enameled, Colors and Sizes Assorted, 2d Choice, Japanned .... per doz. 9·00

Bowls and Pitchers, Decorated—Assorted Colors.

No. 1, Japanned .... per set, $1·85
No. 2, " .... " 2·50

Improved Water Carriers.

No. 1, Japanned and Decorated .... each, $3·35

Improved Slop Jars.

No. 1, Jap'd & Dec'r'd (Enam'ld inside ... each, $4·00

Toilet Stands—Assorted Colors.

No. 1½, Complete .... each, $3·35
No. 1, Stands, with Soap Cup only ..... " 2·00

Toilet Stands—Assorted Colors.

No	2½	3½
Complete ....each,	$5·10	6·50
No	2	3
Stands, with Soap Cup only ....each,	3·25	4·00

Toilet Stands, Complete—Assorted Colors.

No. 4½, Plain Band, Japanned .... each, $10·00
No. 4¾, " Enameled Basin ... " 10·50
No. 5½, Walnut, Oak or Dec't'd, Jup'd .. " 11·50
No. 5¾, " " with Enameled Basin .... each, $12·00
No. 4, Stands, with Soap Cup only, Jap'd " 5·00

Toilet Stands, with Plate Glass Mirrors, Complete—Assorted Colors.

No. 6½, Plain Band, Japanned .... each, $12·00
No. 6¾, " Enameled Basin ... " 12·50
No. 7½, Walnut, Oak or Dec't'd, Jap'd .. " 13·50
No. 7¾, " " with Enameled Basin .... each, 14·00
No. 6, Stands, with Soap Cup only, Jap'd " 7·00

Chamber Utensils.

No	1	2
Marbleized ....per doz.,	$12·00	18·00
Gray and White Enameled .. "	13·50	19·50
Blue and White Enameled .. "	15·00	23·00

Chamber Pail, with Commode Attachment—Enameled Inside.

No. 20. Japanned, Oak or Walnut, with Bronze Bands .... each, $4·00

Towel Stands, Decorated—Assorted Colors.

No	1	2
Each	$2·25	2·50

Folding Chairs—Assorted Colors.

No. 5 .... each, $4·00

Stationers' Files.

No	1	2
Japanned ....per doz.,	$0·85	1·25

Cash Boxes.

Inch	8½	9½	10½	11½
Japanned, without Trays, per doz.	$15·60	18·00	19·80	21·00
Inch	13	14	16	18
Japanned without Trays, per doz	$25·20	27·00	33·00	39·00
Inch	8½	9½	10½	11½
Japanned Trays, Extra, per doz	$5·40	6·00	7·20	8·40
Inch	13	14	16	18
Japanned Trays, Extra, per doz	$9·60	12·00	15·00	18·00

Knife Trays—Assorted Colors.

No	1	2
Japanned ....per doz.,	$9·90	13·20

Tumbler Drainers—Assorted Colors.

No	1	2	3
Japanned ....per doz.,	$9·00	14·40	16·50

Oval Foot Tubs.

No	1	2	3
Japanned ....per doz.,	$12·60	15·60	18·00

Infant's Baths.

Inch	26	28	30	32	34	36	38	40
Each	$1·75	2·10	2·40	2·70	3·00	3·30	3·60	4·20

French Wire Nails—Bright.

Inch	½	⅝	¾	⅞	1	1¼
Per pound	$0·50	·49	·45	·43	·42	·38
Inch	1½	1¾	2	2¼	2½	
Per pound	$0·37	·36	·33	·33	·33	

All put up in five pound packages.

Hanging Flower Baskets, Assorted Colors—With 7½ feet Brass Chain to each Basket.

No. 2, Japanned .... per doz., $18·00

Jardinieres.

No. 5, Decorated—Assorted colors .... each, $6·00
No. 6, " Gilded standards ... " 8·00

Jardinieres.

No. 12, Decorated—Assorted colors .... each, $11·00
No. 13, " Gilded standards .... " 13·50

Jardinieres.

No. 7, Decorated, Gilded stands.....each, $15·00

Fancy Iron Tables, Decorated—Assorted Colors.

No. 1.....each, $5·00
No. 2..... " 7·00
No. 3..... " 7·50
No. 4..... " 8·00

Ladies' Work Stands, Decorated—Assorted Colors.

No. 5.....each, $8·50
No. 6..... " 9·00

Umbrella Stands—Assorted Colors.

No.	1	2	3	4	5	6
Assorted Colors...each,	$2·25	2·50	2·50	3·00	3·50	3·50

Black Walnut Frame Graters—Patented.

No.	10	20
Per doz	$3·00	3·50

Patent Camp Kettles.

No. 150. Japanned.....each, 17·00
Weight (complete) 15 pounds.

Patented Corrugated Sheet Metal Stove Pipe Elbows.

Smooth Charcoal Iron.

Inch	4	4½	5	5½	5¾	6	7
Per doz	$2·25	2·81	3·94	5·06	5·62	5·91	7·31

Genuine Russia Iron.

Inch	4	4½	5	5½	5¾	6	7
Per doz	$4·78	5·62	7·87	10·09	12·37	13·50	15·75

Planished American Russian Iron.

Inch	4	4½	5	5½	5¾	6	7
Per doz	$4·22	5·06	6·75	9·00	10·12	10·12	13·50

Retinned or Galvanized—For Water, Steam or Hot Air.

Inch	2	2½	3	3½	4
Per doz	$1·96	2·53	2·81	3·09	3·66
Inch	4½	5	5½	6	7
Per doz	$3·94	5·06	6·75	7·87	9·56

These elbows can be procured of any angle required.

COMMON STAMPED WARE.

Tin Bucket Covers.

Qts	½	1	2	3	3½
Inch	4½	5 3-16	6 5-8	6¾	7
Per gross	$2·00	2·60	3·40	4·25	5·00
Qts	4	6	8	10	12
Inch	7 11-16	8½	9¼	9½	10 9-16
Per gross	$5·75	6·50	8·00	8·50	11·50

Tin Cake Box Covers.

	Small.	Medium.	Large.
Inch	11½	13½	13½
Per gross	$15·00	18·00	22·00

Tin Pot Covers.

Inch	7¾	8	8¾	8¾	8¾	9	9¾
Per gross	$5·75	5·90	6·00	6·15	6·25	6·50	6·75
Inch	9¾		9¾		10		10¾
Per gross	$7·00		7·25		8·00		8·25
Inch	10¾	10¾	11	11¾	11¾	11¾	12
Per gross	$8·50	8·75	9·25	9·50	9·75	10·00	12·50
Inch	12¼		12¾		12¾		13¼
Per gross	$13·00		13·50		13·75		16·50

Tin Dinner Plates.

Inch	6	7	8	9	10	11
Per gross	$4·00	4·50	5·50	5·80	8·50	10·50

Tin Scolloped Plates.

Inch	6	7	8	9	10	11
Per gross	$4·00	4·50	5·50	5·80	8·50	10·50

Tin Pie Plates.

Inch	6	7	8	9	10	11
Per gross	$4·00	4·50	5·50	5·80	8·50	10·50
Deep..per gross	....	....	....	8·50	10·50	....

Tin Jelly Cake Pans.

Inch	9	10
Per gross	$7·50	10·00

Tin Coffee Pot Covers.

Plain.

Quarts	1½	2	3	4	5	6
Inch	3	3½	3¾	4¾	5	..
Per gross	$1·15	1·40	1·60	2·00	2·75	3·00

Rimmed.

Inch	2¾	3	3½	4	4½	5½	6
Per gross	$2·25	2·50	3·00	3·50	4·00	5·75	6·50

Tin T. K. Breasts—Only.

Inch	7½	8	8¾	9	9¾
Per gross	$6·00	6·50	6·75	7·25	7·75
Inch	10	10½	11		11½
Per gross	$9·50	10·00	12·00		13·00

Tin T. K. Breasts, with Plain Covers.

Inch	7½	8	8½	9	9½
Per gross	$8·00	8·50	8·75	10·00	10·50
Inch	10	10½	11		11½
Per gross	$12·25	12·75	14·75		15·75

Tin T. K. Breasts, with Rimmed Covers.

Inch	7½	8	8¾	9	9½
Per gross	$9·40	10·00	10·25	11·25	11·75
Inch	10	10½	11		11½
Per gross	$13·50	14·00	16·00		17·00

Tin Grater Plates.

Sheet	¼	½	1
Per gross	$3·00	6·00	11·50

Tin Scolloped Cake Pans, with Tubes.

	Small.	Large.
Per gross	$10·50	14·00

Tin Scolloped Cake Pans, without Tubes.

	Small.	Large.
Per gross	$8·00	11·50

Tin Stamped Square Pans.

Sheet	½	1
Per gross	$7·50	14·50

Tin Milk Skimmers—Plain or Pierced.

Per gross.....$4·00

Tin Lettered Plates.

Inch	5¾	6
Per gross	$3·25	4·00

Tin Steamer Bottoms.

Inch	8¼	8¾	9¼	9¾	10¾
Per gross	$7·00	7·25	7·75	8·25	9·25
Inch	10¾	11¼	11¾		12¼
Per gross	$9·75	10·50	11·00		14·00

Tin Stove Pipe Rings.

Inch	4	4½	5	5½	6	7
Plain...per gross,	$4·00	4·50	5·00	5·50	6·00	7·00
Japanned or Burnished. "	6·00	6·50	7·00	8·00	8·50	10·00

Tin Coffee Boiler Lips.

	Small.	Large.
Plain, to Rivet...per gross,	$0·80	1·10
Retinned, to Solder... "	1·25	....

Tin Patty Pans.

Inch	3	3½	4	4½	5
Plain...per gross,	$1·25	1·50	2·25	3·00	3·50
Scolloped... "	1·25	1·50	2·25	3·00	3·50
Deep Scolloped "	1·20	1·40	2·00	..	..

Oval Tin Patty Pans.

No.	1	2	3	4	5
Per gross	$1·60	1·10	1·40	1·60	2·00

Star Tin Patty Pans.

Per gross.....$1·40

Oblong Tin Patty Pans.

Per gross.....$1·65

Heart Tin Patty Pans.

Per gross.....$1·40

Shell Tin Patty Pans.

Per gross.....$1·25

Tin Can Tops and Bottoms.

3¼ inch openings.....per gross, $3·00

Packed in Boxes of 10 gross.

Tin Square Pans, one Sheet.—Folded Edges.

Per gross.....$11·50

Boiler Covers, with Stamped Rims.

Inch	6	7	8	9
	9x18	10¼x20	11x21½	11¾x23
Per doz	$2·00	2·50	3·00	3·75

Boiler Covers, with Flat Edges.

Inch	6	7	8	9
	10x19¾	11x21¼	12¼x22¾	13¾x24½
Per doz	$2·00	2·50	3·00	3·75

We invite attention to the advertisement of T. A. Locke, 32 Cortlandt street, New York, on page 19, who has assumed the agency for the sale of Moran's Roasting and Baking Pan, in favor of which it is claimed that it equalizes the heat on all sides, and, being air tight, preserves all the nutritious properties of the meat, most of which escape in the ordinary open pan.

Bell & Bacon, Troy, N. Y., manufacturers of Fire Brick, make a specialty of Stove Linings, and invite the attention of Stove manufacturers, and others in need of a first-class article, to their facilities for the production of such goods. Their advertisement will be found on page 19.

The Union Hardware Co., No. 120 Chambers and 50 Warren streets, have issued an illustrated catalogue of their Skates and other specialties. James Forsyth, formerly connected with the house of Rowe & Post, has issued a circular, informing the trade that having taken an interest in The Union Hardware Co. as one of its members, he will hereafter travel for this company, who will control the following goods, which they will offer in connection with their own manufactures: Bee Hive Files; W. A. Ives, Augers, &c.; Rugg Mfg. Co.'s Chisels, Drawing Knives, &c.; J. P. Verree & Co.'s Hammers, Hatchets, &c.

BRITISH IRON MARKET.

(Specially reported by cable for The Iron Age.)

WEDNESDAY, Aug. 25, 1875.

Scotch Pig.—The market has been depressed since last report, but rallied toward the close, and prices are now steady. The following are makers' quotations:

Gartsherrie No. 1	69/6
Coltness No. 1	73/6
Glengarnock No. 1	68/
Eglinton No. 1	62/6

Manufactured Iron.—There is but little business doing, and prices are declining. Best Staffordshire Bars are quoted as £9. 10/ @ £10.

Rails.—The market remains without change

IRON.

American Pig.—The general stagnation so long pervading the Iron market continues, and little, if anything, new can be written in regard to the condition of the trade. The production still goes steadily on, and stocks are accumulating somewhat. Some makers are still talking of a further blowing out, but are deterred from so doing by the cost and trouble it would take to start again should any revival of demand make such action necessary. The more prominent Lehigh companies are disposed to remain pretty steady in their asking views, and are obtaining it for the small lots selling, but it would be difficult to sell any quantity at such figures. We hear of sales during the week of 150 tons Allentown at $26; 100 tons Lehigh Valley at $26·50; 350 tons Thomas at $24·50 @ $26; and 500 or 600 tons ordinary grades on private terms. We quote: No. 1 Foundry, $26 @ $27; No. 2 Foundry, $24 @ $25; Gray Forge, $22 @ $24; White and Mottled, $21 @ $22.

Scotch Pig.—The stock of Scotch Iron continues light and in few hands, and as very little is known to be on the way, holders are enabled to obtain late prices for the small lots wanted; very little if any inquiry, however, exists for large parcels. We hear of sales of 100 tons Eglinton, at $29, from yard, and 150 tons, ex-ship, at a private price. We quote, Eglinton at $29 @ $30, and Coltness, $31 @ $32.

Bar.—There is only a moderate jobbing demand from store at about late prices.

Rails.—The general demand for new Domestic Rails is rather light, but most mills are running on back orders, and do not appear to be very anxious for fresh orders at the moment. Prices, therefore, are steadily held. There have been some reported sales during the week of about 6000 tons, but cannot be traced, and generally thought to be either deliveries or settlements on old contracts. We quote at $47 @ $50, currency, for Domestic, and $48 @ $50, gold, for Welsh.

Old Rails.—There is only an occasional inquiry for Old Rails. The stock is ample, but well controlled, and not pressing on the market, so prices are steady. We notice sales of 425 tons at about $26·50, and 100 tons old Street, side bearing, at $29, prompt cash, at Philadelphia—generally considered an outside price. We quote at $26 @ $26·50.

Scrap.—There has been rather more movement in Scrap Iron the past few days, on a basis of about steady values, the market at the close looking a shade better. Sales, 125 tons at $31, 200 tons No. 1 at $32, and 475 tons on private terms, 300 of which is said to have been better than $32. We continue to quote, however, at $31 @ $32 for No. 1.

METALS.

Copper.—There is a rumor of a transaction just about being consummated which is to embrace between 3,000,000 and 4,000,000 pounds Lake Copper on future delivery, not for export, present prices being too high and gold too low. If the said business should come to pass, and the Copper remain under the control of powerful parties, it could not fail to assist the upward movement which has been developing during the past week or two without an effort, the market rising through its own inherent strength and sound condition. The spot sales for the week have been 300,000 lbs. at 23⅝c. @ 23½c., the market closing strong at 23½c. bid, and 23¾c. asked. Nothing has transpired in futures. Baltimore we may quote 23¼c. to 23⅝c., with a moderate demand. London, per cable on Saturday, was £83 for Chili Bars, and £89 for Best Selected. Our manufacturers, seeing business improve somewhat on their hands, have begun to enter the market more resolutely, and the result has been a gradually hardening tendency, the bulk of the available and remoter supply being in firm hands. Steadiness in Copper values has been characteristic of the current year thus far, enabling the manufacturer to make his calculations with precision, and preventing the underselling of one manufacturer by the other. The important improvement in England of £4 per ton within the short space of not quite four weeks, has, of course, not failed to buoy up the hopes of our principal holders, now that we are emerging from the ordeal of summer dullness. Mail accounts from London up to August 14 express themselves to the following effect: "The demand has chiefly come from consumers and exporters, but operators for a fall have also taken a fair share of the quantities sold, and, judging from their inquiries, it would appear that they still have to cover several contracts made by them for delivery during the present month." When the recent London failures took place, some operators there seemed to have thought that the bottom would fall out of metals, but they overlooked the silent influences of increased consumption that had been at work and had changed the whole face of things. Finding themselves entrapped in a bad speculation, they are now buyers at a heavy loss to cover their contracts, and thus help in precipitating the extraordinary advance we are witnessing. The manufactures of Copper have been well sustained at the following rates: New Copper Sheathing, 30c.; Bolts and Braziers, 31c.; Bronze and Yellow Metal Sheathing, 22c, and Bolts, 28c.

Tin.—This article has astonished the metal trade of Europe by the vigor it has displayed in pushing off into consumption such unexpectedly large amounts, at London alone the exports and deliveries during the first seven months of the current year reaching 10,010 tons Foreign, against 5095 and 4287 in 1874 and 1873, the July export and deliveries thereof having been 1906, against 947 and 641 in 1874 and 1873. The total deliveries proper between England and Holland have been 12,013 tons, against 7764 and 6658 in 1874 and 1873. There remained on hand and afloat 13,644 tons on Aug. 1. It is not unlikely that the magnitude of this supply may check a further important improvement, but the accounts per cable from Australia are favorable to holders, only about 350 tons having been shipped thence to England in July, not to speak of the reported decrease of production in the province of Queensland. Singapore wires $22, and Penang $21·62½ per picul. There is now little room for doubt on the subject we have dwelt upon on a former occasion, viz.: "That the extreme cheapness of Tin, as compared to other metals, has stimulated its consumption for uses for which it had not been adopted previously." It is, of course, difficult to trace this; but there is a strong conviction among metal people that this has been the case, for how else could it be explained that such enormous quantities disappear at a time when English Tin Plate production has been materially lessened? But, however this may be, London, which had declined to £77. 6/ for Straits Tin, now cables £82 today, with an upward tendency and strong market, while English Common is £87, equal to 19c., gold, here. Our own market is, if possible, in a better position than the European, the supply being light, present and prospective, and the increase of consumption as rapid and healthy as in Europe. A fair jobbing demand has prevailed among us, and we quote the three leading kinds 19c., gold, in large lots, all round, and Banca nominally 23c., gold. Tin plates have been very quiet indeed, the dealings not stepping beyond a moderate jobbing trade. The following are the quotations, gold, in bond, for larger lines, per box: Charcoal Bright, $7·75 @ $8·00; ditto Terne, $7·25 @ $7·50: Coke Tin, $6·75; and ditto Terne $6·50.

Lead.—St. Louis, under date 23d instant, wires: "Lead scarce and advancing." The heavy rains out West have checked production for the time being, a good many mines having been flooded, not all of them in a position to remove this impediment promptly. It should not be overlooked, however, that the trade demand is as yet light, and that, despite a temporary curtailment, production is as yet ample enough out there to supply the present moderate requirements. The consequence is that our market is not stirred up in the least. For Lead Pipe for building purposes not much demand is expected this season; it may be different as regards Shot. The immediate future will, in due course, enlighten us on this subject. Meanwhile, we remain listless at 5·87½c. @ 5·90c., gold, Domestic. Sales for the week but 75 tons, and Foreign nominally 6⅝c., gold. St. Louis, per telegraph, offers fine Lead laid down here at 7·30c., currency, and Common at 6·65c., currency. The Lead supply in Europe, as per London mail accounts of Aug. 14th, remained scanty, and the metal was fully sustained; The manufactures of Lead are steady, as follows: Bar, 8¾c.; Pipe, 9¼c.; and Sheet, 9½c., less 10 per cent. to the trade.

Spelter.—Some people seem to suspect that the one or the other of the combination parties broke loose from the agreement, as they say it cannot be satisfactorily explained why they are being steadily undersold at 7·10c. @ 7·12½c., currency, thirty days, with Domestic Spelter, while officially the main body of the combination adheres to its figure of 7½c., currency, thirty days. But suspicions of the kind may have no foundation in fact, and the lots thus offering low may, for aught we know, have been bought long ago, when the price was low. At all events, the market still lacks vitality, and the moderate wants of consumers have been easily supplied within the above extremes for a range. Foreign is dull and nominal at 7¼c. @ 7½c., gold. Europe, on the 14th inst., was dull, and in some metal markets on the Continent it was less firm. *Sheet Zinc.*—A moderate jobbing demand exists within the range of 8¾c. @ 8¼c., gold, according to size.

Antimony is not over active at 13c. @ 13¼c., gold, Foreign, in larger lots, and 13½c., gold, in a small way. Stocks are running down, and the sales now making cannot be replaced from England at anything like the selling price here. London, August 13, remained £55 @ £56.

COAL.

We have no special feature of interest to report in the condition of the coal market this week. The quantity of coal coming to market still continues to increase, and dealers are well supplied. Monthly circulars have already been issued for the month of September, according to the Associated Coal Companies' programme, which advances the price of Anthracite Coal five and ten cents per ton. Cumberland Coal meets with a fair inquiry at steady rates. Foreign Coals are dull, and there is less inquiry than usual, owing to the cheapness of domestic.

The following are the circular prices fixed by the coal companies which are represented by Frederick A. Potts, 110 Broadway, for delivery during the month of September:

SHIPPED FROM PORT JOHNSON, ELIZABETHPORT, HOBOKEN, HONDOUT, TRENTON AND PERTH AMBOY.

	Lump.	Steamer.	Broken.	Egg.	Stove.	Chestnut.	Chestnut No. 2.
	$	$	$	$	$	$	$
L. & W. C. Co.'s, Wilkesbarre	5 05	5 15	5 25	5 55	6 00	4 95	4 00
L. & W. C. Co.'s, Old Co. Lehigh	5 55	....	5 50	5 60	6 00	5 10	4 00
L. & W. C. Co.'s, Plymouth Red Ash	....	....	5 25	5 65	6 15	5 10	4 00
L. & W. C. Co.'s, Honeybrook Lehigh	5 55	....	5 50	5 60	6 00	5 10	4 00
Fulton Lehigh	5 55	....	5 50	5 60	6 00	5 10	4 00
Scranton	5 05	5 15	5 25	5 55	6 00	4 95	4 00
Lackawanna	5 05	5 15	5 25	5 55	6 00	4 95	4 00

The quantity of Coal sent from the Schuylkill region the last week was by rail 124,491 tons; canal, 30,717 tons; for the week, 155,208 tons, against 104,037 for the corresponding week last year. Increase, 51,171 tons.

The supply sent from all the regions was: Anthracite, 612,340 tons; Bituminous, 70,897 tons; for the week, 692,237 tons, against 504,117 tons for the corresponding week of last year. Increase, 188,120 tons.

The supply sent from all the regions for the year foots up 10,619,823 tons Anthracite and 2,214,679 tons Bituminous. Total, 12,834,502 tons, against 14,111,984 of all kinds for corresponding period last year. Decrease, 1,277,482. The decrease in Anthracite was 1,345,860 tons.

We quote as follows: Anthracite, $4·90 @ $5·90; Cumberland, $6·25 @ $6·75; West Virginia, $6·75 @ $8; James River Steam, $6·25; James River Carbonite, $9 @ $9·50; Kanawha House, $11·50; American Gas, $6·75 @ $7·25; American Cannel, $12 @ $14; Pennsylvania and Westmoreland, $6·75; Murphy Run, $6·50; Newburg Orrel, $6·50; Sterling Ohio, $10; Ince Hall, $17 @ $18; Liverpool House Cannel, $17; Liverpool Gas, $12; Newcastle Gas, $7·50; Scotch, $7·50 @ $8.

The Coal transported over the Cumberland Branch Railroad during the week ending Aug. 21, 1875, amounted to 5469 tons, as against 4686 tons shipped in the corresponding period of last year, showing an increase of 783 tons. Over the Cumberland & Pennsylvania Railroad, for the same period, the shipments were 43,329 tons, against 48,092 tons shipped in 1874, a decrease of 4763 tons. The aggregate amount of Cumberland Coal shipped by the various companies so far this year amounts to 1,432,632 tons.

OLD METALS, PAPER STOCK, &c.

Business in this market still continues quiet, and quotations remain about the same as last reported. Old Metals are as dull as we have noted heretofore, and there is little demand from consumers for any description of stocks. The Rag and Paper stock market still remains unchanged from the dullness previously noted. A better feeling, however, is apparent among dealers, as they have great expectations of doing a large business in the fall. We quote the following as the current purchasing rates:

Old Metals.—Copper, 16c. @ 17c. per lb.; Yellow Metal, 11c.; Brass, 10c. @ 12c.; Composition, heavy, 13c. @ 14c.; Lead, solid, 5½c.; Tea Lead, 4½c.; Zinc, 4¼c. @ 4½c.; Pewter, No, 1, 18c.; do., No. 2, 8c. @ 12c.: Spelter, 5c. @ 5½c., Wrought Iron, 1c.; Sheet do., ¼c.; Cast, do., ¼c.; Machinery, do., ⅝c.

Rags, &c.—Canvas, Linen, 4¾c. @ 5¼c.; do. Cotton, No 1, 5¾c. @ 6¼c.; No. 2, 2¼c.; White, No. 1, 6¼c.; No. 2, 4c.; Colored, do., 2c. @ 2½c.; Mixed, Woolen, 2c. @ 3c.; Soft, do., 5c. @ 5½c.; Gunny Bagging, 1¼c.; Jute Butts, 1¾c. @ 2c.; Kentucky Bagging, 3c.; Book Stock, 3c.; Waste Paper and Scraps, 1½c.; Kentucky Bale Rope, 4c.; Oakum Junk, No. 1, 4½ @ 5c.; do. No. 2, 3c.; Tarred Shaking, 1c. @ 1¼c.; Grass Rope, 2¾c. @ 3c.

PHILADELPHIA.

PHILADELPHIA, Aug. 24, 1875.

There is nothing of novelty and little activity to report in the market here. Transactions in Pig Metal are comparatively light, although it is generally conceded that bottom prices have been reached, and that all grades of Iron must advance between now and the close of navigation. Still, the improvement in demand which was expected by this time has not come, and some brands of Pig Iron can be bought at prices considerably below quotations. The inquiry continues fair, however, for Pig Metal, and without an increase of stock prices would improve. It is, however, officially announced that the Reading Coal and Iron Company has offered to supply furnaces on the line of the Reading road with coal, ore and limestone, and to take the product of Pig Metal at a contract price. This offer is, it is said, being accepted by several furnace owners, and may result in the production of considerable stocks of Pig Iron at low prices, which must be stored, and which, in expectation of its being at any time put on the market, will tend to restrict consumers from purchases beyond immediate wants. Manufactured Iron is dull, and mill owners complain that there is no margin at present prices, nor demand sufficient to justify an advance. Rails are in best inquiry, but prices rule in favor of buyer, while the stronger companies invariably purchase Steel Rails, for which prices are comparatively low and tending downward. Old Rails are in better request and Scrap comparatively scarce, with transactions at somewhat better figures.

The following prices are current in this market, viz:

PIG METAL.—No. 1 Foundry, $26; No 2, $24; Gray Forge, $22·50 to $23.

BARS.—2·6c. per lb.

RAILS.—$47 to $49.

OLD RAILS.—$26 to $27.

SCRAP.—$28 to $32·50, as to selections.

Among the sales are included those of Pig Iron, 3500 tons No. 1 Foundry at $26; 2200 tons No. 2, $24; and 1800 Gray Forge at $22·50. Rails, 1500 tons, 30 lb. for far Western delivery; 3000 tons for Pacific Coast, and 7000 tons to Eastern parties on private terms, generally. Old Rails, 1000 tons at $27 here; and sales of Scrap in small lots at quotations.

PITTSBURGH.

PITTSBURGH, Aug. 23, 1875.

PIG IRON.—There has been an increased volume of business during the past week, the reported sales footing up 3080 tons, and while prices remain unchanged, the market is firmer, and when the slightest concession is offered there is no difficulty in effecting sales. Several lots of Forge were reported at $24, five mos., instead of four, the usual time; but the Iron was not strictly first-class in point of quality, and some of it had been in yard for a year or more. The stock of Pig in the hands of commission merchants in Pittsburgh, does not exceed 40,000 tons, of which not over 25,000 tons are mill iron. This is the lightest stock we have had in this market for several years, and thus it should be borne in mind that the mills, as a rule, have little or none, as they have been adhering closely to the hand-to-mouth policy, buying only for immediate wants. And thus the fact that the production is very much reduced, a large percentage of the furnaces here, and at those points tributary to this market being out of blast, is not without its effect in stimulating the article. It is not expected, even by producers, that there would be any very decided advance, but they do hope to be able, within the next few weeks, to be able to obtain $25, 4 mos., for good standard Mill Iron, and even at that, it is said, after taking the reduced cost of manufacture into consideration, the margin is very small. The movement in Foundry grades continues light, the only sale reported this week of any consequence being 800 tons, to go west of here, on private terms. No. 1 is quotable at $27 @ $28, 4 mos.; No. 2, $25 @ $26.

MANUFACTURED IRON.—Trade continues sluggish, as it nearly always is during mid-summer, but the great majority of the mills are in operation, some of them working double turn, and as recent reports in regard to the crops have been more favorable, our manufacturers are calculating upon at least an average fall trade. While the general tone of the market is firmer, in sympathy with the raw article, prices remain as last quoted, 2·25 @ 2·30, Merchant Bars, Pittsburgh classification.

NAILS AND HORSE SHOES.—Orders on Nails have not commenced to come forward very freely, but it is expected that they will within the next week or two, and with this in view, nearly all the factories have been started up again. Stocks are light; unusually so, both here and at Wheeling, and the outlook is considered favorable for a good fall and winter trade. Prices unchanged; $3, 60 days, with 10 cents per keg off on 100 keg lots and upward, and 2 per cent. discount for cash. Schoenberger & Co. quote Horse Shoes at 4¼ cents, cash, for 100 keg lots, and Mule Shoes at 5¼, cash.

STEEL.—The mills are all in operation, some of them running double turn, and the general outlook warrants the prediction that this will continue during the balance of the year. About the only complaint heard is in regard to rates, which have been run down so low that they afford little or no margin for profit.

SCRAP IRON.—There is no improvement to note in the demand for Scrap, but it is likely there will be in a few weeks. While there has been no quotable change in prices, there is a firmer feeling in sympathy with Pig Iron, and stocks are comparatively light, the receipts for some time past having been small. No. 1 Wrought is still quoted at $25 to $26, 4 mos., delivered at mills.

WINDOW GLASS—Continues dull and very unsatisfactory, as it has been for a year or more past. It is stated that quite a number of factories, not only here, but elsewhere, will not be started up again until there is a decided change for the better, and thus by curtailing the production may be the means of bringing it about.

The Pittsburgh *Commercial* of Aug. 21 says: The sales of Pig Metal reported below show a considerable increase in the number of tons sold this week over any week for some time past, but do not indicate any improvement in prices, unless it may be in the fact that lots offered at a little below the market rate found ready buyers. The inquiries noted last week still continue, and it is fair to presume that as the stocks of old metal become exhausted by actual consumption the price will improve—although it is not supposed that there can or will be any considerable advance in the price beyond present rates.

STOCK OF PIG IRON IN YARDS AND ON WHARF.

	Tons.
Gray Forge	25,000
Charcoal	14,500
Foundry	2,500
Total	42,000

We are reported the following sales:

BITUMINOUS COAL SMELTED FROM L. S. ORE.

500 tons gray forge	$24·00—5 mos.
300 tons gray forge	24·00—5 mos.
300 tons gray forge	24·00—5 mos.
100 tons gray forge	24·00—5 mos.
100 tons extra gray forge	25·00—4 mos.
100 tons gray forge	24·00—5 mos.
100 tons white and mottled	22·50—4 mos.
100 tons close gray neutral	23·00—4 mos.
100 tons gray forge	24·00—5 mos.
50 tons close gray	23·00—5 mos.

ANTHRACITE.

800 tons foundry, to go West	private terms.
250 tons gray forge	$24·00—5 mos.
100 tons close gray	22·50—cash.

CHARCOAL.

100 tons No. 2 foundry, h. r.	Private terms.
170 tons No. 2 foundry, h. r.	$27·00—4 mos.
40 tons No. 1 foundry, h. r.	31·00—4 mos.
20 tons cold blast	34·00—4 mos.
10 tons No. 1 foundry, h. r.	30·50—4 mos.

CONNELLSVILLE COKE.

100 tons gray forge	$24·00—4 mos.
60 tons close mottled and white	22·00—4 mos.
20 tons No. 2 foundry	25·00—4 mos.
10 tons No 1 foundry	26·50—4 mos.

BLOOMS.

10 tons charcoal.....$70·00—4 mos

LOUISVILLE.

Messrs. GEO. H. HULL & CO., under date of Aug. 23, writes us as follows: There is some inquiry for first-class Foundry Iron, but at low figures. For Cold Blast and Mill the demand is very light.

HOT BLAST CHARCOAL.

No. 1 F'dry, from Hanging Rock Ores	$27·00 @ 28·00
" 2 " " "	25·00 @ 26·00
" 1 Mill, " " "	23·00 @ 24·00
" 1 F'dry, from Alabama, Georgia and Tennessee Ores	25·00 @ 26·00
" 2 F'dry, from Alabama, Georgia and Tennessee Ores	24·00 @ 25·00
" 1 Mill, from Alabama, Georgia and Tennessee Ores	23·00 @ 24·00

HOT BLAST STONE COAL AND COKE.

No. 1 F'dry, from Hanging Rock Ores	$25·00 @ 26·00
" 2 " " "	24·00 @ 25·00
" 1 Mill, " " "	23·00 @ 24·00
" 1 F'dry, from Alabama, Georgia and Tennessee Ores	25·00 @ 26·00
" 2 F'dry, from Alabama, Georgia and Tennessee Ores	24·00 @ 25·00
" 1 Mill, from Alabama, Georgia and Tennessee Ores	23·00 @ 24·00
No. 1 F dry, from Missouri Ores	27·00 @ 28·00
" 2 " " "	26·00 @ 27·00
" 1 Mill, " "	26·00 @ 27·00

COLD BLAST CHARCOAL.

Car Wheel from Hanging Rock Ores	35·00 @ 40·00
" " Tennessee Ores	30·00 @ 33·00
" " Alabama and Georgia Ores	30·00 @ 35·00
Car Wheel from Kentucky Ores	28·00 @ 35·00

BOSTON.

AUG. 21.—*Pig* is dull to the last degree. Prices have no steadiness nor uniformity, holders quoting just about what they expect will attract business. New York prices are announced here as $26 to $28 for No. 1; $24 to $25·50 for No. 2; $20 to $22 for Gray Forge. Boston quotations are, nominally No. 1, $29 to $30; No. 2, $24 to $27; and Gray Forge, $21 to $24. *Bar* has had a very little improvement in its aggregate of sales for the week, the prices being on a $58 basis. There is a little scarcity of some of the very small sizes, and in this line of extras 50c. better is obtainable. Common Iron is peddling out at $52 to $54. *Steel* is in better request for machinery. We quote American Tool, 15c. to 15½c.; American Machinery, 9½c. to 10c.; do. Cast Tires, 8½c. to 12½c.; Sweet's Excelsior Tire, 7c. to 7½c.; English Tool, 10c. to 17c. *Copper* is holding nominally at 23½c., although the New York

market is quoting ¼c. higher. Sales this week of 300,000 pounds to manufacturers at 23c. seems to have been the first noticeable business in this direction for some time. For manufactured, we quote New Sheathing, 30c.; Bolts and Braziers, 31c.; Yellow Metal Bolts, 20c. to 29c. *Lead*, is a trifle easier from an accumulation of stock both here and at shipping points. Of the two, foreign is the more disposed to lower its value. We quote Pig, 6c. for Domestic, and 6⅝c. to 6¾c. for Foreign; Sheet and Pipe Lead, 9½c., currency; Tin Lined Pipe, 16¼c.; Bar Lead, 6½c., less usual trade or 10 per cent. discount. *Antimony* is firm, with very little business, quoting from 13c. to 13½c. as to lots bought. *Spelter* is strong and dull at $7·55, 30 days, and $7·40, prompt cash, all currency. Silesian is having a trivial business at $7·30. *Tin*, from the pressure of American holders' to realize has lost the tone imparted ten days ago by the European advices, and prices are again easier, with sales very light. We quote Straits, 18⅝c. to 19c.; Banca, 23c.; Refined English, 18¾c. to 19c., gold. Plates are active; we quote Charcoal I. C., $9·50 to $10; Coke, $7·75 to $8; and Terne at $7·50 to $11, gold.—*Com. Bulletin.*

CINCINNATI.

Messrs. L. R. Hull & Co., under date of August 23, write us as follows: Pig Iron.—But little of importance relating to the Pig Iron market can be reported for the past week. Nearly all consumers are buyers to a moderate extent, but few are running to their full capacity either among the mills or foundries. This makes a fair current demand, and there seems to be little disposition by either buyers or sellers to speculate far in advance of the present time. A few round lots have changed hands, but sales are generally in smaller quantities. Cold Blast Irons in small demand.

HOT BLAST CHARCOAL.

Hanging Rock	No. 1.. ₱ ton.	$27·00 @ —4 mos.
" "	No. 2.....	24·00 @ 25·00—4 mos.
" "	Forge.....	23·00 @ 24·00—4 mos.
Virginia	No. 1.....	25·00 @ 26·00—4 mos.
"	No. 2.....	23·00 @ 24·00—4 mos.
"	Forge.....	23·00 @ —4 mos.
Southern Brands	No. 1.....	25·00 @ 26·00—4 mos.
"	Forge.....	22·00 @ 23·00—4 mos.
Missouri	No. 1.....	27·00 @ —4 mos.
"	No. 2.....	26·00 @ —4 mos.

HOT BLAST STONE COAL.

Missouri	No. 1..... ₱ ton..	$27·00 @ —4 mos.
"	Forge.....	26·00 @ —4 mos.
Ohio	No. 1.....	24·00 @ 27·00—4 mos.
"	Forge.....	23·00 @ 26·00—4 mos.
Am. Scotch,	No. 1.....	25·00 @ 26·00—4 mos.

COLD BLAST CHARCOAL.

Hanging Rock Car Wheel	₱ tn.	$35·00 @ 40·00—4 mos.
Missouri	" "	35·00 @ 40·00—4 mos.
Southern Br'ds	" "	30·00 @ 40·00—4 mos.
Machinery and Forge	.....	30;00 @ 35·00—4 mos
Blooms	.....	70·00 @ 90·00—4 mos.

ST. LOUIS.

Messrs. Spooner & Collins, Iron commission agents, 409 North Third street, St. Louis, under date of Aug. 20, report the Iron market as follows: We have nothing new to report regarding the state of our market. Prices remain about the same. Demand light and for small quantity only. We quote on 4 mos. time.

Mo. Stone Coal,	No. 1 F'dry.	$28·00 @ 29·00—4 mos.
" "	No. 2 F'dry.	26·00 @ 27·00—4 mos.
" "	No. 1 Mill...	25·00 @ 26·00—4 mos.
" Charcoal,	No. 1 F'dry...	28·00 @ 29·00—4 mos.
" "	No. 2 F'dry...	26·00 @ 27·00—4 mos.
" "	No. 1 Mill....	25·00 @ 26·00—4 mos.
Tenn. Charcoal	No. 1 F'dry..	28·00 @ 29·00—4 mos.
" "	No. 2 F'dry..	26·00 @ 27·00—4 mos.
H. R. "	No. 1 F'dry..	29·00 @ —4 mos.
H. R. "	No. 2 F'dry..	27·00 @ —4 mos.
H. R. "	No. 1 Mill....	26·00 @ —4 mos.
Massillon,	No. 1 Foundry....	36·00 @ 37·00—4 mos.
"	B, No. 1 Foundry..	34·00 @ 36·00—4 mos.
"	No. 2 Foundry....	33·00 @ 34·00—4 mos.
Cold Blast Car Wheeel,	Mo...	37·00 @ 40·00—4 mos.
" "	Tenn. Hanging Rock	35·00 @ 40·00—4 mos.
		53·00 @ 55·00—4 mos.
Mo. Charcoal Blooms		75·00 @ 85·00—4 mos.
Machinery Cast Scrap		·90c. per lb.
Light Cast "		·60c. "
No. 1 Wrought "		1·10c. "
Stove Plates		¾c. "

CLEVELAND.

Messrs. C. E. Bingham & Co., 25 West Main street, under date of Aug. 23, quote the Iron market as follows, 4 mos. time:

FOUNDRY IRON.

No. 1 Lake Superior Charcoal	$31·50—4 m.
No. 2 " "	30·50—4 m.
No. 1 Anthracite	29·50—4 m.
No. 2 "	27·50—4 m.
No. 1 Bituminous	28·50—4 m.
No. 2 "	27·00—4 m.
No. 1, Cherry Valley Am. Scotch	31·00—4 m.
B—1 " "	28·50—4 m.
No. 2, " "	27·50—4 m.
No. 1 Massillon	30·50—4 m.
B—1	27·50—4 m.
No. 2	25·50—4 m.

CAR WHEEL AND MALLEABLE IRON.

No. 3 Lake Superior Charcoal	$30·50—4 m.
No. 4 " "	32·00—4 m.
Nos. 5 & 6 " "	33·00—4 m.

BESSEMER IRON.

Nos. 1 and 2 Lake Superior Charcoal	$31·00—4 m.

FORGE IRON.

No. 1 Gray	$24·50—4 m.
White and Mottled	23·00—4 m.

RICHMOND.

Mr. Asa Snyder, Iron Merchant and Furnace Agent, Richmond, Va., writes as follows under date of Aug. 24: The market is firm for good Wheel Irons. They are sold as rapidly as they reach this market. Quotations as previously.

Virginia cold blast Charcoal Pig Irons.	$30·00 @ 35·00
" hot " " "	28·00 @ 32·00
Va. hot blast Coke Pig Iron, No. 1 ex.	26·00 @ 27·00
" " " " No. 2 ex.	25·00 @ 26·00
" " " " No. 3 ex.	24·00 @ 25·00
Virginia Anthracite, No. 1 ex	27·00 @ 28·00
" " No. 2 ex	26·00 @ 27·00

BALTIMORE.

Messrs. Wyeth & Brother, Iron and Steel merchants, South Charles and Lombard streets, report us the following prices under date of Aug. 24: Trade has ruled fair and improving for the past week, with well assorted but light stocks, though ample for the business doing. List remains unaltered, and adhered to for the present.

AMERICAN REFINED BAR IRON.

1 to 6 wide by ⅜ to 1 thick.. 1 to 4½ wide by 1⅛ to 2 thick	2·6-10 to 2 7-10c. ₱ lb.
Round and square, ordinary sizes, from ⅝ to 2 inclusive	2 6-10 to 2 7-10c. "
Hoop Iron, 1½ wide and upward	4½c. to 4¾c. "
Band Iron, from 1¼ to 4 in. wide	3¼ to 3½c. "
Horse Shoe Iron ⅝ to 1 wide by ⅜ to ½ thick	4 to 4½c. "
Norway Nail Rods	7 to 7¼c. "
Black Diamond Cast Steel, Flats, Squares and Octagon, ordinary sizes	15½ to 16c. "
Machinery Steel	11 to 11¾c. "
Cast Spring Steel	10 to 10¾c. "
Homogeneous Steel Plate	10½c. "
Perkins' Horse Shoes, per keg of 100 lbs	$5·00
" Mule Shoes " "	6·00

Common Horse Nails, from 14c. to 18c. per pound.

	10	9	8	7	6
Putnam Horse Nails	23	24	25	26	28c. per ₱.
	10	9	8	7	6
Globe Horse Nails	23	24	25	26	28c. per ₱.

R. R. Spikes.....5¼ by 9-16 at 3c to 3¼c. per lb.

Messrs. R. C. Hoffman & Co., Iron and commission merchants, Nos. 23 and 25 South Frederick street, report the Pig Iron market as follows, under date of Aug. 23: There is no change in our Iron market, and quote prices as follows:

Baltimore Charcoal	$30·00 @ 35·00
Virginia "	29·00 @ 34·00
Anthracite No. 1	26·00 @ 27·00
" No. 2	24·00 @ 26·00
" No. 3	22·00 @ 24·00
White and Mottled	20·00 @ 21·00

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(*From our Regular Correspondent.*)

Sheffield, Eng., Aug. 9, 1875.

TRADE, GENERALLY,

is fully as dull and listless as when I last filled my allotted space in these columns—certain vaticinations to the contrary, notwithstanding. Some sanguine gentleman, hailing from the most densely hyperborean part of the Black Country, writes to the newspapers to say that he thinks matters are not quite so bad as they seem to be, and expresses a belief—which he can most freely do without additional charge under this benignant constitutional government—that we are on the eve of a decided improvement in the iron trade. Some how or other we are *always* on the "eve" of something. I can hardly remember a period when we were not, and yet we are not, nor have we ever been—happy. Man never is, but always *to be* blest, saith the proverb, and I do not dissent from its sententious wisdom so far as trading matters are concerned. Few traders are content at any time, or if they really are so they possess the happy facility of concealing their thoughts in a powerful degree. If business is brisk they are "pulled to pieces" what with the men and "one thing or another." If the times are bad then they grumble eternally, incessantly, loudly and deeply, and they circumvent heaven and earth in order to iterate their complaints sufficiently. This may be so also on your side the Atlantic. If so, I crave pardon of such of your readers as may feel pricked, but I know—and they are hereby informed with due deference—that in these dreadfully dull periods one must write about something. That is the burden of my complaint at present. I pass on—considerably relieved in mind.

THE IMMEDIATE FUTURE,

it is thought, cannot very well be much worse than the existing state of things, although it is admitted that such a thing is possible. Coal is very weak in price in all directions, and is in such slight request that many collieries are laid off pending some improvement in the demand. The men are, in these instances, quite out of employment. In South Yorkshire, Derbyshire, Durham and West Yorkshire the miners have received notices of further reductions in their wages, and appear willing to recognize the necessity for the step by acquiescing in as slight a drop as they can "get off" with. Supposing fuel to come down still lower in price, the iron masters might feel able to give buyers a little further concession, but unless such be the case any marked reduction in finished iron is almost wholly out of the question. If August and September should prove hot months (as I write, I may say, the rain is coming down with tropical violence) coal might become cheaper, but even in that eventuality the advent of October would, in all probability, bring about a reaction by the revivification of the house coal trade, which invariably sets in with the chilly evenings of that month. The iron workers have had a slight drop in wages (puddlers to 9/ per ton) awarded by arbitration in Staffordshire, Worcestershire, Derbyshire and South Yorkshire, but the men of the last named locality appear to be inclined to fight the question, part of their number being already on strike. Should these men generally turn stupid, and a general strike ensue, it is exceedingly probable that a great benefit might thereby be conferred upon the trade at large. "We shall see what we shall see," however, as the French say.

IRON AND STEEL INSTITUTE.

The next provincial meeting of the Iron and Steel Institute will be held at Manchester on September 6, 7, 8, 9 and 10. It will be the first gathering of the members which will have taken place in that district. *Iron* says: "Most of the large works in the neighborhood of the city will be thrown open for the inspection of visitors. Some of these, devoted to the manufacture of tools and machinery, have a more than national reputation, and will be well worth seeing; but there are also many cotton factories, print works, copper works and other industrial establishments given up to specialties, which will introduce the Institute to a new sphere of operations. An excursion has been projected into North Staffordshire, and at the Ravensdale Works there, an opportunity will be afforded of seeing in operation one of the latest applications of the Danks mechanial puddler."

"IMPORTANT ECONOMICAL DISCOVERY."

Under this impressive heading a gushing newspaper correspondent, presumably residing in Staffordshire, says: "In one of our iron making centers experiments of great economic significance are being conducted, under the supervision of the senior partner in the firm of Messrs. Rogers, Burchfield & Co., iron masters, of Leechburgh, Pennsylvania, who, on only a brief visit, has arrived in England within the past fortnight. Mr. Wm. Rogers is no ordinary man, and, although now an American iron master, he is an Englishman. Upon first leaving home he toiled as an iron worker in Austria, and removed thence to the United States. There he found that the very expensive iron sheets made in the iron works of Siberia were largely used; but that neither in the United States nor in any other country beyond Russia was it known by what means the peculiar excellence of the Russian thin iron was obtained. Like "Foley the fiddler," who after two stolen visits to Sweden succeeded in filching from the iron masters of that country the secret of making slit rods, Mr. Rogers four years ago went out to Siberia, and being successful in gaining admission to the iron mills there, he possessed himself of the information which all iron masters outside Russia so ardently desired. Returning to America he commenced making Russian sheets. The method is still jealously guarded by the Russians, and is not, we believe, known even at the present day in England. But this is not all; he has applied the natural well gas of Pennsylvania as a fuel to all the purposes of his iron works—the heating of furnaces and the generating of steam. By the application of blast, injected at the top of the furnace, he has also used the principle of the blow pipe in the making of finished iron, to the conspicuous economy of the working and the improvement of the quality. In ascertaining whether that can be done here, by using blast in the fashion which has been done at Leechburgh, Mr. Rogers is just now occupied, and the experiments have thus far promised equal success in the two countries. If all should be realized which is anticipated, it will be possible to make finished iron of cheap slack instead of costly large coal, the heavy cost of fettling will be saved, the quality and the yield will be largely improved, and the residum of the coal so burnt will not be a worthless ash and cinder, but a serviceable coke. Nor is this all which is foreshadowed in this simple application of blast above rather than below or at the sides of a fire. Mr. Rogers is confident that the principle can be applied to the firing of locomotive and of marine boilers, with results even more economical than those attending its use in iron making. While Mr. Rogers is experimenting in England, associated iron masters of Pittsburgh are investigating what is being done in the every day operations of his firm at Leechburgh. If only the half of all that seems practicable through this discovery should be attained, colliery owners and iron masters, the consumers of iron, and the owners of railways and steamships will be immensely benefited by it. The suggestion as to locomotives will be tested on one of our leading railways within a few days."

You may, or may not, know all about this. News of home is often gathered afar off, and as this may be an instance in point I give it entire.

THE SCOTCH IRON TRADE.

During the week just ended the Glasgow warrant market gradually grew firmer, and at the termination of the week's business on Friday evening, warrants for G. M. B. were 62/6, as against the 60/6, at which they stood on the Monday morning. Makers' brands also participated in the slight renewal of firmness, and are now quoted 1/, 1/6 and 2/ per ton higher. Last week's shipments were hardly equal to those during the corresponding period of 1874, but they reached 10,600 tons, a total which shows that a tolerably fair shipping business is being done. Connal's stores now hold 36,091 tons, a fact which leads some shrewd operators to suppose that the current firmness will not endure long, and will be followed by a more than proportionate reaction. Freights are mainly unchanged at 5/ to New York, ballast pig being still 53/, delivered alongside.

Writing from Glasgow, August 6, Messrs. James Watson & Co. said: "Since the date of our last report the market has daily advanced, opening on Monday at 60/6 and closing to-day at 62/6, cash. The quotations for makers' iron have also been advanced 1/ to 2/ all round. Shipments last week were 10,678 tons, against 11,153 tons in the corresponding week of 1874.

	No. 1.	No. 3.
G. M. B., at Glasgow	62/6	61/6
Gartsherrie, "	69/6	61/6
Coltness, "	70/6	64/6
Summerlee, "	66/	61/
Langloan, "	69/6	61/6
Carnbroe, "	64/	61/6
Calder, at Port Dundas	68/6	61/
Glengarnock, at Ardrossan	67/	62/
Eglinton, "	64/	61/
Dalmellington, "	62/6	61/6
Shotts, at Leith	69/6	63/6
Kinneil at Boness	63/6	60/

Messrs. Wm. Colvin & Co. (Glasgow, August 10), say: "The warrant market steadily improved during last week, and closed on Friday at 62/6, cash. On Monday it opened firmly at 62/6, and closed, buyers 62/9. To-day there was more disposition shown on the part of those who were oversold to close their accounts, and business was done up to 64/3; closing with buyers over sellers 64/6. The undernoted prices for makers' iron show a general advance since this day week, which is accounted for partly by the pressure for delivery into store and partly by orders for foreign shipment:

	Deliverable alongside. No. 1.	No. 3.
G. M. B., at Glasgow	63/	61/6
Gartsherrie "	69/6	62/6
Coltness, "	70/6	65/
Summerlee, "	66/	62/
Langloan, "	69/	62/
Carnbroe, "	63/6	61/6
Monkland "	63/	61/6
Clyde "	64/6	61/6
Goven, at Broomielaw	63/	61/6
Calder, at Port Dundas	70/	62/
Glengarnock, at Ardrossan	67/6	62/
Eglinton, "	62/6	61/6
Dalmellington,"	62/6	61/6
Carron, at Grangemouth, selected	67/6	..
Shotts, at Leith	69/	63/
Kinneil, at Bo'ness	62/6	60/
Bar Iron	£8. 10/ to £9. 0/	
Nail Rods	£9. 0/.	

SHIPMENTS.

	Tons.
Week ending Aug. 7, 1875	11,014
" Aug. 8, 1874	7,646
Increase	3,368
Total increase for 1875	82,298

The prices current of Messrs. John E. Swan & Bros.' (Limited), Glasgow, Aug. 6, say:

Glasgow Brands.	Furnaces B'wing. 116	Furnaces Out 41.	Furnaces Built. 157.	Prices. No. 1.	No. 3.	No. 4
Gartsherrie	13	3	16	69/	61/	..
Coltness	12	0	12	69/	62/6	..
Summerlee	6	2	8	66/	61/	63/
Langloan	7	1	8	69/	61/	64/
Govan	4	1	5	62/	61/	62/
Calder	2	6	8	68/6	61/	64/
Shotts { Bess'mer / Ordinary }	5	2	7	82/6 68/	.. 63/	.. 63/
Carnbroe	4	2	6	63/6	61/	63/
Wishaw	2	1	3	..	..	..
Monkland { / Chapelhall }	9	0	9	62/ ..	61/ ..	60/ ..
Clyde	5	1	6	64/	61/	60/
Quarter-Clyde	4	1	5	62/	61/	60/

* f. o. b. Glasgow, 1/ per ton, extra.

Glasgow Warrants, 3-5 No. 1; 2-5 No. 3, g. m. b., 62/6.

WEST COAST BRANDS—*f. o. b. Ardrossan.*

Glengarnock		7	2	9	66/6	61/6 63/6
Ardeer		4	1	5		
Eglinton	Brand'd	6	2	8	61/	60/ 61/
Lugar		4	0	4		
Muirkirk		3	0	3		
Portland	Eglint'n	3	3	6		
Dalmellington		6	2	8	60/	59/ 59/

EAST COAST BRANDS—*f. o. b. in the Forth.*

Kinneil		3	1	4	61/	58/6 58/6
Almond		2	1	3	62/	59/ 59/
Carron	Select'd / Ordn'y	5	1	6	67/6 65/	.. ..
Lochgelly		0	4	4	..	59/ 59/
Lumphinnans		0	2	2	..	.. ..
Bridgeness		0	2	2	..	.. ..

Furnaces in blast in Scotland, Aug. 6	1875	116
	1874	89

TRADES OF SHEFFIELD.

Very little business in iron of any description has been transacted during the past week. Pig iron still rules on a quietly low level, and any purchaser with a commission worth being seriously entertained meets with comparatively little difficulty in arranging with the producer for some accommodation in respect of prices. Hematites are easy at the drop recorded in last week's issue, the following being current prices: Maryport hematite, No. 3, 77/6; No. 4, 77/6; No. 5, mottled and white, 77/6; Bessemer, No. 1, 80/; No. 2, 77/6; and No. 3, 77/6 per ton, with the customary allowance for prompt; Millom Bessemer, No. 1. 82/6; No. 2, 80/; and No. 3, 77/6; ordinary, No. 3, 77/6; No. 4, 77/6; No. 5, 77/6; mottled, 85/; and white, 82/6; on the usual four months' terms or with 2½ off for cash. Other West Coast brands of these irons are held at similar rates, which are hardly likely to be much lower, officially, at present.

A few lots of foreign and home finished irons have recently changed hands. Swedish pig iron is still quoted at about £6 f. o. b. at Gothenburg, or in bulk at about that figure delivered in the Humber. Rolled Swedish nail rods are about £17, with an extra 10/ for rounds. Rolled bars range from £16. 10/ to £17, with an additional £1 for better qualities of hammered iron specially suited for machine purposes. Russian irons are inquired after now and again in small lots by file and saw steel manufactures. They range from £15 to £23 per ton, and are fairly firm. In home and local merchant irons there is literally no recordable alteration either as to prices or demand. It is generally admitted that trade was hardly ever any duller in the iron branches in this district, there appearing to be no *bona fide* inquiry for any merchant irons save those of the highest brands for machine making and engineering purposes. Low Moor—the leading brand of these last—is still £22 per ton.

The process of resuscitating the Phœnix Bessemer Steel Company, Limited, is said not to be proceeding as satisfactorily as those concerned could have wished. It will be borne in mind that the shareholders, some weeks back, decided to resuscitate by raising £100,000 of preference shares to bear 10 per cent. interest, the liabilities being proposed to be extinguished by paying the creditors 12/ in the pound—if they would accept it. Some difficulty having arisen, however, a general meeting of the shareholders was called for to day (Thursday) at the Victoria Station Hotel, by the shareholders' committee. At their meeting it was resolved that the amount of preference capital already promised was sufficient to enable the shareholders' committee to carry out the proposal to pay the creditors 12/ in the pound. The works of the company are now advertised for sale by private contract. They comprise four Bessemer converters capable of producing 1000 tons per week, with cogging, rail and merchant mills, six steam hammers and a foundry; they are well situated as to railway accommodation. The creditors of Mr. Thomas Hampton, until recently managing director of the Phœnix Company, and formerly carrying on business as a steel manufacturer in partnership with two other persons at Maryport, Cumberland, met at Sheffield on Thursday last. The liabilities were shown to be £19,000 and the assets £843. A good deal of sympathy was expressed for Mr. Hampton, and after it had been resolved to wind up the estate in liquidation, his discharge was unanimously granted by the meeting.

A special meeting of the Cutlers' Company—now including manufacturers in every branch of the iron and steel trades—was held on Tuesday, at which Mr. Edward Tozer, managing director of Sanderson Brothers and Company, Limited, was elected Master Cutler for the ensuing year. The cutlers' feast will be held on Thursday, September 2d.

The subjoined list of dividends will, perhaps, interest those who have similar investments in the United States:

At the third annual meeting of the Parkgate Wagon Company, at Rotherham, on Friday, the year's profits were stated to be £3435. Out of this an interim dividend of 20 per cent. per annum had been paid, and it was resolved to pay further 15/ per share on the first issue, 8/9 on the second, and 3/4 on the third issue. The report of the North Central Wagon Company, after alluding to the anxiety induced by the existing depressed state of trade, recommends a dividend at the rate of 10 per cent., with a bonus of 4 per cent. The directors of Robert Cook & Company, Limited, Hathersage, recommend a dividend of 6/6 per share free of tax for the past year. The report of the directors of the Sheffield Wagon Company, Limited, shows a profit of £7987 on the year's working, out of which dividends are recommended—of 15/ per share first issue, 11/ on second issue, 8/ on third issue, 6/ on fifth issue, 5/ on sixth issue, and 2/ on seventh issue, or 10 per cent. per annum free of tax. The reserve fund now amounts to £5208. The Goole Engineering and Shipbuilding Company's second annual report shows that no dividend will be paid this year, the paid up capital is £32,165, small debts £1986; and other debts, £26,395; balance £309. On the other side are the company's property, £34,768; works in progress £18,663, preliminary expenses, £412; unsecured debts, £3599; bad debts, £980; legal expenses, £587; cash in hand and balance, £1922. The third annual report of H. and S. Barker & Company, Limited, Mexboro', recommend a dividend of 12/6 per share in addition to the interim dividend of 7/6 per share paid in January last. The directors of the Tinsley Rolling Mills Company, Limited, in dealing with the fourteen months' working ending June 30th, state that a profit of £2368 has been made, out of which a dividend of 5/ per share is recommended in addition to the interim dividend paid in March. The British Wagon Company, Limited, Rotherham, has made £3901 profit on the year's working, out of which a dividend of 10 per cent. per annum, with a bonus of 1¼ per cent., is recommended to be paid. The company's debentures now amount to £127,794. The Leeds and County Bank had made a profit of £21,535 during the half year, out of which a dividend at the rate of 10 per cent. per annum is recommended, leaving £7000 for the reserve.

Various contracts are on the point of being placed. The Barnsley Gas Company ask for offers for all the screened soft coal they may require for gas making for a period of one, two or three years, from October 1st next. The Cheshire Lines Committee require 500 tons of steel rails, a similar quantity of chairs, with fish bolts, plates and spikes, together with sleepers and plugs, &c. The Midland Railway Company require 42 tons of wrought iron trough girders, to be delivered at Stanton Gate Station on the Erewash Valley branch line. About 1150 tons of cast iron beams and pillars are wanted for a new mill in Legrams lane, Bradford, Yorkshire, by Lockwood and Mawson, architects, of that town. The Northeastern and Northwestern Joint Leeds Station Committee want tenders for widening the present station on a viaduct, and for the construction of a new approach road from Boar Lane. A good deal of iron work will doubtless be needed. The members of the South Yorkshire and North Derbyshire Coal Owners' Association, Limited, again met at Sheffield on Monday afternoon, and, after considerable discussion, decided that a reduction in the wages of the miners throughout the district was at once required, and the Finance Committee was empowered to enter into negotiations with the executive of the South Yo[illegible] Miners' Association on the subject, with a view to arriving at a prompt settlement.

There is very little alteration in cutlery, but from what I hear I am inclined to think that there is a clearer and somewhat surer demand from the United States and from British North America than there has been of late. Whether matters on your side are taking a seasonable fall spurt already, or not, you will be better aware than myself; but it is an undoubted fact that, within the past fortnight, several respectable commissions for table, pocket, pen and special cutlery of all kinds, that is to say, knives, razors, scissors, &c., have been placed here from your buyers, and those of the British possessions near the Dominion.

STAFFORDSHIRE AND BIRMINGHAM.

At the Wolverhampton and Birmingham weekly meetings of Wednesday and Thursday last, there was a slight current of opinion running in favor of the supposition that in some branches of industry the actual amount of business done was rather larger, and that there were better prospects. Sheets, hoops and a few lots of best bars changed hands at both the meetings, but the aggregate of the sales did not amount to a tithe of what ought to result from a very ordinary 'change gathering, hence it is not easy to ascertain the ground whereon the optimists founded their fond expectations. Prices remain unchanged in every respect, coal was not cheaper, and the merchants did not approach buyers with any intention of doing business—wherefore then this hope eternal in the iron masters' breasts? Simply, I suppose, because they are of opinion that matters cannot grow worse than they are, and they may, consequently, just as well look ahead as not. We shall see by Christmas whether their sanguine hopes have been justified by actual subsequent occurrences. Most of the hardware trades are tolerably well engaged, almost every description of hardwares having been reduced in price, to a greater or less extent, during the past two months. At Wolverhampton the locksmiths' have gone out on strike for an advance of 10 per cent. in wages. They number about 600, and those who generally work on rim, mortice, cabinet and padlocks, and their wages average from 18/ to 21/ per week of about twelve hours daily. A few firms have conceded the advance, and if all do so an advance in these goods will of course follow.

SOUTH WALES.

is quiet, dull, depressed—perfectly uninteresting to write about, just now. Cyfarthfa mills are stopped for lack of orders, but the blast furnaces are ready to be blown in. Dowlais, on the other hand, continues to be very busy, the management having recently been fortunate enough to have secured a few good rail orders. Mr. Henry Crawshay is reported to have bought the Forest of Dean (Park End) iron and tin plate works for the sum of £120,000. The tin plate works as a rule is very quiet, but as the production has been intentionally restricted the output is pretty fairly met by the current demand, at prices which are very firm.

THE METAL MARKETS

have been a little better in tone, and rather more business has been done. On Tuesday 100 tons of Lota (copper) were sold in Liverpool at £79. 10/, the London offers being £79 only. Tin went up 20/ to 30/ per ton in London same day, Straits being £78 and Australian £76. 10/. Lead held firm at £22. 7/6. On Wednesday copper was steadily quiet, 25 tons of Chili bars were sold in London at £79. Tin was again firm, Straits at £80. Twenty-five tons July shipment were, however, negotiated at £79, and 50 tons Australian at £76. 10/. Spelter was quoted £24. On the Thursday 25 tons Chili bars were done at £79. 5/, tin being steady without sales.

Messrs. Von Dadelszen & North's report say: "*Copper* has nearly recovered its late decline, being assisted by the news of moderate charters for the second fortnight of July, viz., 1400 tons. Chili bars have changed hands to a fair extent from £78 to £79. 10/, the latter the nearest value now. No alteration in the position of Australian. English dull of sale for both raw and manufactured. *Tin* has speedily recovered on its becoming known how large were the deliveries of the past month, amounting to upward of 1900 tons. Business would have been done to a greater extent if holders had been more willing to supply the demand and meet the market. Straits has advanced from £78 to £80, cash, and £79. 10/ for tin afloat, sellers remaining scarce. Australian £76. 10/ to £77, cash. English is somewhat firmer. Banca in Holland firmer, 48½fl.; Billiton, 46¼fl. Tin plates show no improvement, although makers think that the lowest point has been touched; prices are very irregular. *Lead* has maintained its position. *Spelter* is without any transactions officially reported. Silesian remains nominally at £24. English £25, delivered. *Quicksilver* in good demand, at £10.

The *Mining Journal* says: "*Copper*..—The market has been steady. Sellers have shown increasingly less disposition to part with their holdings. The charters from the West Coast for the last half of July were announced on Tuesday, and are as follows: 1400 tons, 600 tons being bars for the Continent, 600 tons for England, and 200 tons ore and regulus. Since then the market for foreign copper has become firmer, and Chili bars have been dealt in at £79. 10/, cash. English is very much neglected, and, indeed, the business in copper has been altogether considerably restricted. The quotation for Chili to-day is £79. 10/ to £80, cash fourteen days, and about £79 for distant delivery. *Lead.*—There is no material change to report in the position of this metal. Lead is firmly held, and the demand suffices to maintain the firmness of the market. Good soft English pig is not obtainable under £22. 5/. *Spelter.*—Very little doing in this metal, but market very firm, at £24 for Silesian, and £18. 5/ to £18. 10/ for hard, the latter very difficult to obtain in any quantity. *Quicksilver* continues steady at £10 per bottle. *Tin.*—The market has exhibited increased firmness during the last few days."

Messrs. Berger, Spence & Co.'s circular of to-day remarks that "there has been a better tone in copper at a slight advance. *Tin* has met with a better sale, and closes firm. Lead also enjoys a good market."

Messrs. Harrington, Horan & Co. (Liverpool) said in their circular of last week: "Only a moderate business has been done in copper since the dispatch of the last mail at about £2 decline on good ordinary Chili bars, and the market to-day is unsteady and prices are irregular. It is rumored that a quantity of Australian copper, supposed to be 2500 tons, has been sold to the Continent on private terms, particulars of which have not yet transpired. *Tin.*—The Dutch sales of Banca went at an average price equal to about £63 per ton. The market is unsettled, and business is reported in Straits at £76 to £77. 10/, Australian at £75, and British at £83. Peruvian is neglected, and quotations are quite nominal. *Lead.*—Market steady at £22. 5/ for ordinary shipping brands. *Spelter.*—Market dull at £23. 15/ to £24 for ordinary Silesian brands."

Latest Liverpool prices are:

Iron: f. o. b. in Liverpool, per ton.

	£	s.	d.	£	s.	d.
Merchant bar	8	2	6 @	8	5	0
Merchant bar, in Wales	7	12	6 @	7	15	0
Staffordshire	8	15	0 @	11	15	0
Hoop	9	15	0 @	11	0	0
Sheet	11	10	0 @	12	0	0
Nail rod	9	0	0 @	9	5	0
Bar, best crown	8	15	0 @	9	0	0
Boiler plates	11	5	0 @	12	0	0

Tin Plates: f. o. b. in Liverpool, per box.

	£	s.	d.	£	s.	d.
Charcoal, I. C.	1	8	0 @	1	10	0
Coke, I. C.	1	3	0 @	1	6	0

Copper: Delivered in Liverpool, per ton.

	£	s.	d.	£	s.	d.
Bolt and Sheathing	93	0	0 @	94	0	0
Tile	88	0	0 @	90	0	0
Tough cake	87	0	0 @	89	0	0
Best selected	90	0	0 @	91	0	0

[*For other Trade Matter see page* 17.]

STANDARD
32 Cal.
Just Out.

Prices Reduced for Little Joker, STANDARD, Paragon, Tycoon & Whitney's Revolvers.

ILLUSTRATED CATALOGUE of

GUNS, RIFLES, PISTOLS, MATERIAL,

Shooting Tackle, &c., furnished to DEALERS only.

P. O. Box 5380. SCHOVERLING & DALY, 84 and 86 Chambers Street, N. Y.

HERCULES IRON CUTTER.

No. 1, weight 16 lbs., cuts ⅜x2 inch, or ½ inch round or square.....Price $25 00
No. 2, " 165 " ⅝x3 " ¾ " " " " 50 00
No. 3, " 350 " ¾x4 " 1 " " " " 75 00

This is by far the most powerful Iron Cutter in use which can be worked by hand, having three times the capacity of any other machine which sells at the same price. The No. 3 machine occupies a space of 12x20 inches; when in use additional space must be had for the lever to work in. We send two sets of knives with each machine—one for square and flat, the other for round iron and steel. By using the knives adapted to it, round iron is cut without being flattened. One man can cut the largest size iron named above, but two would be required for steady work. It does not take a minute to change the knives or to shift the machine from large to small sizes.

AUGUSTA, GA., March 3, 1875.

MILLERS FALLS CO.—Enclosed find draft for amount of invoice, January 2. We would have sent the amount before, but did not have an opportunity of trying the Iron Cutter until a few days ago. It is one of the best machines we ever saw. Yours, truly, MOORE & CO.

Office of the ATHENS FOUNDRY AND MACHINE WORKS,
ATHENS, GA., February 18, 1875.

H. L. PRATT, President.—Dear Sir: Enclosed find draft made payable to your order by Messrs. Childs, Nickerson & Co., in payment for Iron Cutter. We have put our Cutter to good service, and find it cuts readily 1½ round, and 3½ x ⅜ square iron. C., N. & Co. are pleased with theirs, say it will save many a blow and cold chisel in their iron house.

Truly, yours, R. NICKERSON, Agent.

We make a satisfactory discount to dealers, and warrant the cutters to do all which we claim for them. Send for prices.

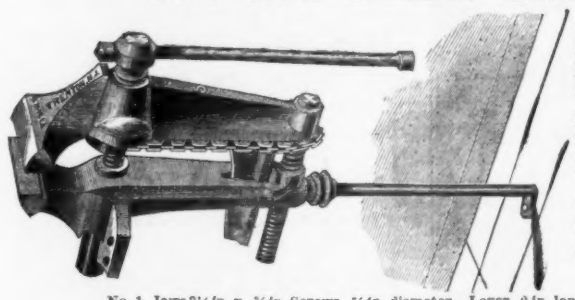
Millers Falls Company,

No. 78 Beekman Street, New York,

Sole Proprietors and Manufacturers of the

Barber Self-Fitting Bit Braces, Millers Falls Vises,
Improved Angular and Ratchet Drilling Machines,
TUBE SCRAPERS, FAMILY TOOL CHESTS,
Patent Adjustable Tool Holders, Mitre Boxes, Ratchet Braces, Breast Drills, etc.

The New Double Screw Parallel "Leg" Vise.



We are now ready to furnish, as the result of more than thirty years' experience, our latest style of Vise—the best yet made. It is **stronger** than any other, whether of Foreign or of American make; always parallel and holding with a tighter "grip." The jaws are of convenient shape for the workman to get near his work equally well for filing or chipping, instead of the heavy, clumsily formed jaws of the cast iron Single Screw Vises of the common "parallel" type, and which, depending upon slide alone for preserving parallelism, can never be screwed up very hard without "jamming" on the sides or breaking.

Our New Vise combines all the advantages of the "Peter Wright" Leg Vise, of strength and lightness, fastening to the floor and bench, and at the same time greatly superior to it; is always perfectly parallel at all points of opening, and never gets out of line. Embodying the same general principle as the well known Chain Vise, so long made by us, we have by new, scientific proportioning of all the parts, and with our recently improved metals for their manufacture, obtained so perfect a tool, that we now *warrant* these Vises for *three years* from date of manufacture stamped upon each.

The Jaws are of best Tool Cast Steel, welded on, file cut and properly hardened. The screws are forged of the best refined iron, and work in *solid cut thread* boxes.

The lower screw maintains the parallel position of the two jaws, by having exact motion with the upper working screw through the connecting chain which regulates it.

The chain is very accurately made of steeled links and rivets, and having no strain of the work upon it, is therefore as durable as all the other parts.

Prices with Special Discounts to the Trade.

No. 1,	Jaws 3½ in. x ¾ in.	Screws	⅝ in.	diameter.	Lever	9 in.	long,	Opens 4½ in.....$8 00
" 2,	" 4½ in. x 1 in.	"	1⅛ in.	"	"	13 in.	"	" 5½ in.....12 00
" 3,	" 5½ in. x 1⅜ in.	"	1⅛ in.	"	"	16 in.	"	" 6½ in.....17 00
" 4,	" 6¾ in. x 1¾ in.	"	1¼ in.	"	"	19 in.	"	" 7¾ in.....22 00
" 5,	" 7 in. x 1¾ in.	"	1¾ in.	"	"	24 in.	"	" 9 in.....30 00
" 6,	" 8 in. x 1¾ in.	"	1¾ in.	"	"	26 in.	"	" 10 in.....34 00

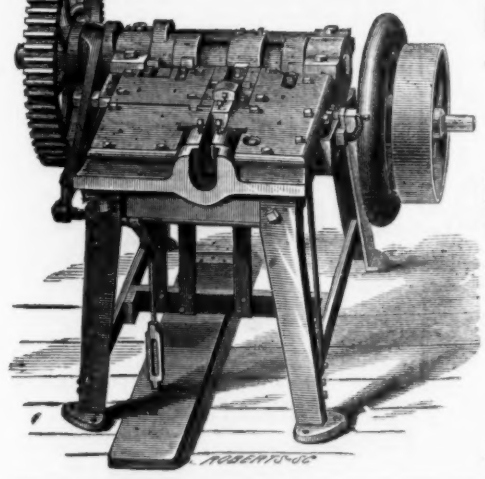
All sizes of these Vises furnished with Swivel Attachment, at an additional cost of $1 to $3. Sold at the General Agencies.

THESE GOODS ARE SOLD BY THE GENERAL AGENTS (with special discounts to the trade).

New York.—Messrs. J. CLARK WILSON & CO.—RUSSELL & ERWIN MANUFACTURING COMPANY.—Messrs. HORACE DURRIE & CO. Boston.—Messrs. GEORGE H. GRAY & DANFORTH. Philadelphia.—Messrs. JAMES C. HAND & CO. Baltimore.—Mr. W. H. COLE.

FISHER & NORRIS, Trenton, N. J.

PATENT BOLT HEADER



Every Railroad Shop, Car Shop, Machine & Bolt Shop, Mower, Reaper & Plow Manufacturer, should have one.

Three sizes of these machines are made, viz:

No 1 will make bolts from ½ inch down.
No. 2 " " ¾ "
No. 3 " " 1¼ "

The three sizes if run together would require from 2 to 2½ horse-power.

The variety of shapes that can be made are only limited by the ingenuity of the owner. A few minutes only are required to make a change from one shape or size to another. All dies are made of the best Cast Steel, and can be redressed many times.

T. Button, Countersunk, Rivet and Round Head; Plow and Track Bolts, &c., are made at one revolution. Square and Hexagon Heads require from 3 to 5 revolutions.

For Simplicity, Durability and Compactness it has no equal.

A Boy can learn to run it in a few hours. The bolt is made on the heated bar and cut off in the machine to any length from 1 to 10 inches; if greater lengths are desired, they should be cut before heating. Either Round or Square Iron may be used.

Will use up as much iron as can be heated in any ordinary blast fire.

For prices and further particulars, address,

WILLIAM GARDNER'S SONS,

575 Grand & 414 Madison Sts., N. Y

Sole Agents for THE EMPIRE FILE WORKS,

HAND-CUT FILES AND RASPS.

OLIVER'S CHILLED PLOWS.

These implements, though but four years before the public in their present form, show the following remarkable record:

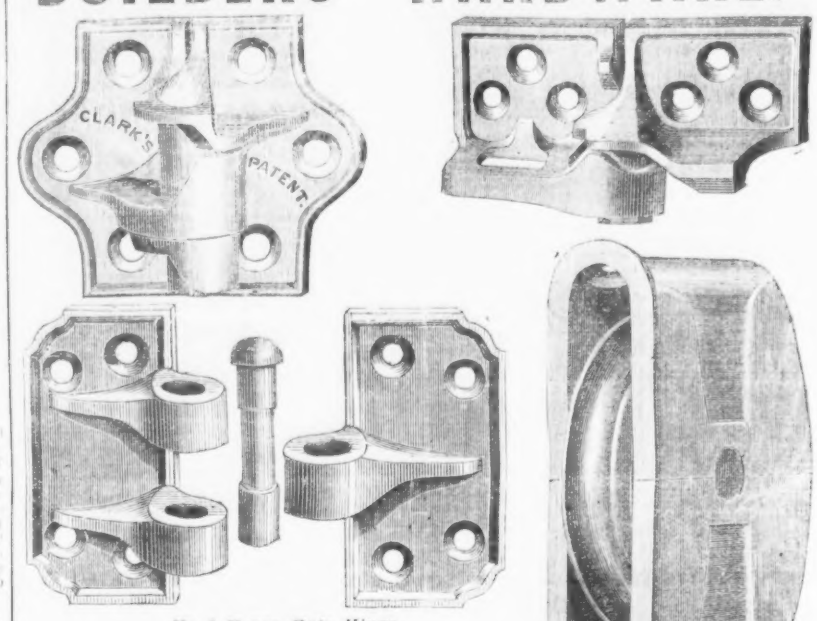
1506 were sold in the season of 1871. 7472 were sold in the season of 1873. 30,000 will be made for the season of 1875.
3049 " " " 1872. 14,976 " " " 1874. For full descriptive circulars, address,

SOUTH BEND IRON WORKS, South Bend, Ind.

CLARK & CO.,

MANUFACTURERS OF

BUILDERS' HARDWARE.



No. 1 Upper Gate Hinge.

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D. R. BARTON & CO.,

At the Old Stand, 136 Mill St., ROCHESTER, N. Y.

Sole Manufacturers of the

D. R. BARTON & CO. BRAND OF

Carpenters' & Coopers' Tools.

All goods stamped **D. R. Barton & Co.**, are made at the Old Works, and by the old men, from the Best English Steel, manufactured for us by Thos. Firth & Sons and Wm. Jesson & Sons, and fully warranted.

Goods stamped **D. R. Barton** are not made at the Old Works of the company, but by a new stock company, formed about the time of Mr. Barton's decease.

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Buffalo, N. Y.

Manufacturers of

Jewett's Patent
FIRE SET
Coal Vases
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Utility Covered
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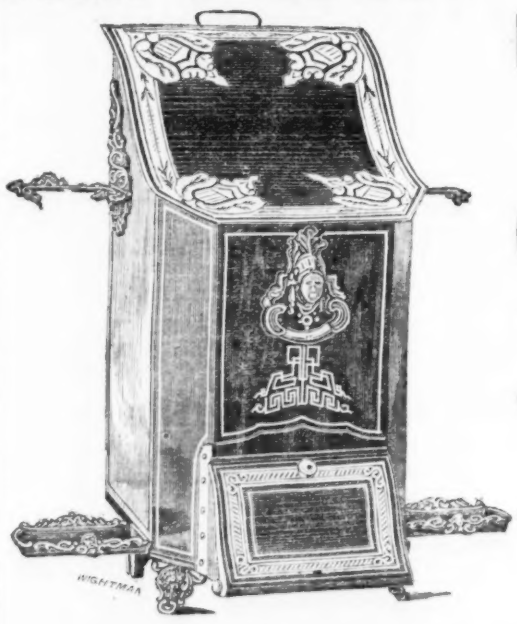

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BEST COAL HOD IN THE WORLD.

CAST STEEL CORN HOOKS.

The blades are polished and ground to Sharp Cutting Edge ready for use. The handles are of first-class timber with square end, and are firmly strapped and rivetted to the Blade, and are as pronounced by the trade the Best and most durable article in the market. Packed in barrels of seven dozen each.

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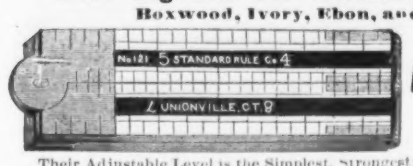
Boxwood, Ivory, Ebon, and Patent Party Color



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Adjustable & Non-Adjustable

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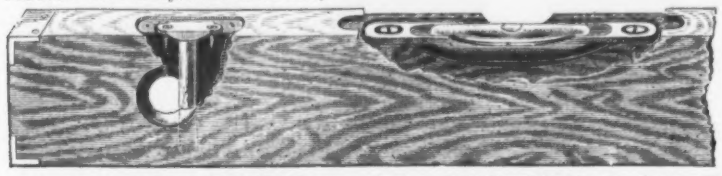
Their Adjustable Level is the Simplest, Strongest and most Reliable one in the market.

The Spirit Glass is in a metallic case of such a shape at each end as to exactly correspond and bear easily upon perfect curve of a recess formed in the stock for its reception. The case is secured at each end to the stock by a strong screw. When the Level requires adjustment the top plate is removed, one screw is loosened and the other driven until required position is reached. The Plumb Glass is arranged on the same principle. The Top Plate protects the adjustment against thoughtless or mischievous persons, the security being well worth the trouble required to remove it when an adjustment is necessary.



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BAILEY'S PATENT ADJUSTABLE PLANES.

IRON AND WOOD. 30 different styles.. 100,000 ALREADY IN USE.

Smooth Planes,
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Carpenters,
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[No. 9¼ Excelsior Block Plane, $2 00.]

Manufactured by the **STANLEY RULE & LEVEL CO.,**

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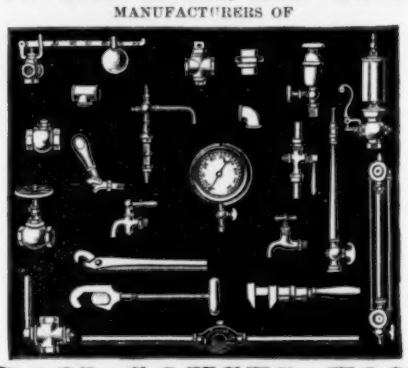
Wrought Iron **PIPE,** Cast Iron FLANGED PIPE, **Cast Iron** RADIATORS and BOILERS.



Brass & Iron **STEAM** Gas & Water **FITTINGS.** PLUMBERS' **MATERIALS.**

STEAM GAUGES, TOOLS,

And all Supplies used by Machinists, &c.

TRADE

MARK

HOUSE ESTABLISHED, 1862.

GEORGE S. FALES,

SUCCESSOR TO

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Sole Owner and Manufacturer of

Page's Patent Lace Leather,

And Manufacturer of

OAK BELTING,

Also, Picker or Moccasin Leather, for Boot and Shoe Packs.

Angular Belting and Pullies made to order.

PAWTUCKET, R. I.

Ask for Star Stamped Lace Leather.

GOLD MEDAL Non-Extensible Razor Belt.

PATENTED JULY 25, 1871.

RE-ISSUED MAY 13, 1873, and JUNE 9, 1874.

In this Strap the liability of the leather to stretch and become loose and porous is prevented by the use of a patented non-extensible base, which supports the leather and secures

PERMANENT ELASTICITY.

We make this style with single rod, double rod, and wood frames, and intend that it shall, in quality, compare favorably with our other well known brands.

BENJAMIN F. BADGER, Manufacturer,

Badger Place, Charlestown, Mass.

Pipe, Fittings, &c.

WROUGHT IRON

INDESTRUCTIBLE ENAMELED PIPE

For Water, Gas, Sewage & Soil Pipe.

Manufactured Solely by

NATIONAL TUBE WORKS CO.,

Also Lap Welded Steam & Gas Pipe & Boiler Tubes.

Tubing & Casing for Artesian, Oil & Salt Wells (with Patent Protecting Coupling),

A Specialty made of Large Wrought Iron Lap Welded Tubes, 8 in. to 14 in. diameter.

MACK'S PATENT INJECTOR, ETC.

Works and Offices at BOSTON, MASS., and McKEESPORT, PENN.

OFFICES AND WAREHOUSES,

New York, 78 William Street. Chicago, 112, 114 & 116 Lake Street.
Cincinnati, 119, 121 & 123 Pearl Street.

McNab & Harlin Mfg. Co.,

MANUFACTURERS OF

BRASS COCKS

For STEAM, WATER and GAS.

Wrought Iron Pipe & Fittings, Plain and Galvanized

PLUMBERS' MATERIALS.

Illustrated Catalogue sent by express to the Trade on application.

Factory, Paterson, N. J. 56 John Street, N. Y.

The Acme Pipe Cutter.

MADE ENTIRELY OF SOLID CAST STEEL.

Cuts Wrought Iron, Brass and Copper Pipes, Round Iron &c perfectly true without leaving burr on pipe, contracting or splitting it. Cuts out a chip similar to a lathe tool. The knife may be removed and ground. Send for descriptive circular to manufacturers.

Pancoast and Maule PHILADELPHIA PA.

WM. ESTERBROOK,

Wholesale Manufacturer of

Coal Hods,

FIRE SHOVELS, Etc.

311 Cherry St., PHILADELPHIA.

CAST IRON PIPES

FOR WATER AND GAS.

Branches Retorts, &c.

Warren Foundry & Machine Co.,

PHILLIPSBURG NEW JERSEY.

GEORGE BARNES & CO.,

Manufacturers, Syracuse, N. Y.

ENCAUSTIC TILES.

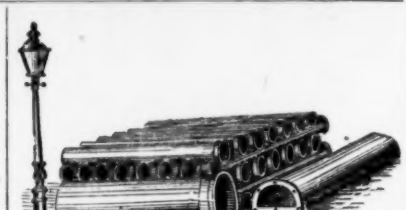
ALEXANDER FINDLAY,

Importer,

99 MAIDEN LANE, N. Y.

Sole Agent in the U. S. for

CRAVEN, DUNNILL & CO., (Limited.)



R. D. WOOD & CO.,

Philadelphia,

Manufacturers of

Cast Iron Pipe

FOR WATER AND GAS.

Lamp Posts, Valves, &c.,

Mathew's Pat. Anti-Freezing Hydrants.

400 CHESTNUT STREET.

CHAPMAN VALVE MFG. CO.,

77 Kilby Street, Boston.

Water,

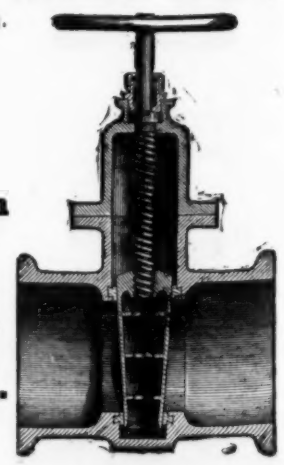
Gas

AND

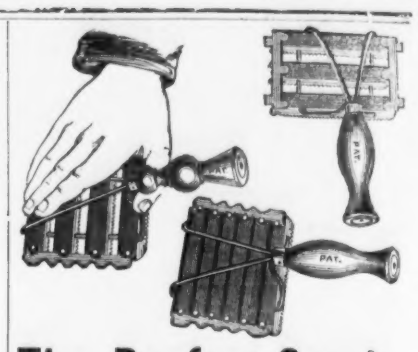
Steam

VALVES.

Hydrants.



Send for circular.



The Perfect Comb.

We call your attention specially to our new patent endless wire frame comb. The result of a long series of experiments, made with a view to meeting all the requirements of a *Perfect Comb*. It is better, stronger, and more durable than any ever before invented. The raised wire shank gives what has never before been attained, viz: a rest and brace for the thumb, in such a position that the hand cannot come in contact with the horse while using the comb. The wire braces which run from the shank over the back to the front teeth give strength and durability in a direction never heretofore attained, and at the same time serve as an extra handle; and when clasped by the fingers in connection with the raised shank the comb is more firmly, easily, and completely held, and with much less fatigue to the hand than is possible in any other formation—in short, it needs but a trial to vindicate it a name: **The Perfect Comb.**

THE LAWRENCE COMB CO.

Factory and Office,

382 2d Ave., cor. 22d St., N. Y.

WILLIAMS WHITE & CHURCHILL

Successors to

MACKRELL & RICHARDSON MFG. COMPANY

Manufacturers of

Builders' Hardware,

Locks, Hinges, Hooks and Staples, Awning Hooks, Meat Hooks, Pincers, Champion Noiseless Pulleys,

CHAIN PULLEYS &c.

Factory, cor. Flushing and Nostrand Avenues BROOKLYN.

Warehouse, 73 Warren St., N. Y.

WM. S. CARR & CO.

Sole Manufacturers of

CARR'S

Patent Water Closets,

PUMPS,

Cabinet Wood Work, Vases, &c

106, 108 & 110 Centre Street,

Factory, Mott Haven, New York.

J. AUSTIN & CO.,

168 Fulton Street, N. Y.,

Proprietors and Manufacturers of

WHEATCROFT'S SELF-ADJUSTING

Pipe Wrench,

AND

Scripture's Funnel Top

MACHINE OILERS.

Dealers in

STEAM AND GAS FITTERS TOOLS.

RIEHLE BROTHERS,

Ninth Street, near Coates, Philadelphia.
New York Store, 93 Liberty Street.
Pittsburgh Store, 285 Liberty Street

"Patented" Furnace Charging Scale.

Double Beam R. R. Track Scale, Compound Parallel Crane Beams, &c. Patented First Power Lever Wagon Scales. Testing Machines any capacity.

The Iron Age Directory

and index to Advertisements.

The Plane.

The following comes to us from English sources: This instrument, when well made, and kept in order, surpasses, in accuracy of performance, all other hand tools. Originally furnished with only one iron, the plane now has usually two, the undermost for cutting the shaving, the uppermost for breaking it in such a manner as to prevent it acting as a lever in lifting or tearing up fibres in front of the cutting iron. In England the stock or body of the plane is generally made of beech; but on the Continent apple and pear are frequently substituted with happy results. Through the stock is a vertical aperture, of which the lower portion acts as a guide to the cutting edge, and forms together with this latter the mouth of the plane. This effectually regulates the depth to which the cutting iron can penetrate, but it would not be sufficient to prevent it from following the inequalities of the surface to which it might be applied. This would utterly unfit the plane for the purpose for which it is intended; hence, this tendency is overcome by giving considerable length to the stock, which causes a plane in operating on a rough piece of wood, to remove successive shavings from the more prominent parts until a surface level with the deepest original depression is attained. The flatness attainable with a plane is greatly dependent on the skill of the workman. He must always try to plane "hollow" rather than round, for if a plane be sufficiently long in the stock, it is impossible for him to give any appreciable concavity to a surface of moderate size. For this reason roughing out planes, or "jack planes," are made as long in stock as possible, without making them too heavy and inconvenient, the usual size being from 14 to 18 inches long. Planes used for "truing," or "trying planes," as they are incorrectly called, are used to correct the inequalities left by the former, and are usually from 22 to 24 inches in length, or even 28 to 30 inches, in which case they go by the name of "jointers," and are principally used for making long joints. The smoothing plane, which is employed to give the finishing strokes to a surface which has already been flattened, is generally about eight inches long.

In grinding the edge of the cutting iron care should be taken to use a true faced grindstone, and a good flat oilstone. The front iron having once been sharpened will require no further attention, as it lies against the cutting iron in such a position as to protect its edge effectually from ever getting blunted. The cutting iron should be ground to a flat cutting edge at an angle of about 25° on the stone, and then finished on the oilstone in such a manner as to form a fresh "facet," or bevel, making a more obtuse angle with the line of the iron, say about 10° more, so that the total inclination edge will be about 35°. In replacing the second iron on the first, the kind of work for which it is to be used must be borne in mind. If the second iron is brought very close to the edge of the cutting iron, the shaving is broken up more effectually, the work is neater and less liable to tear up; but the labor expended will be greater. As a rule, for roughing out, the edges may be somewhat distant, say about one-sixteenth inch apart; but for finishing, the top iron edge and the cutting iron edge should be almost on the same level.

The "bed" of the plane iron is made at different angles, to suit different kinds of work; the four angles most in use are known as "common pitch," which denotes that the back of the iron reposes on its bed at an angle of 45° from the sole, and this inclination is usually employed for all surface or bench planes for soft wood. "York pitch" indicates an angle of 50°, and is more adapted to use with mahogany and other hard stringy woods. "Middle pitch" or 55°, and half pitch or 60°, are employed with molding planes, the former being for soft woods and the latter the harder kinds. In the course of time the mouth of the plane gets enlarged and out of truth. This may be to some extent avoided by keeping the sole greased by rubbing over with a piece of bacon rind; but sooner or later the mouth must be rendered smaller, which can be done by letting in a piece of boxwood in front of the cutting iron. Some planes, especially those used by cabinet makers, have the sole made either entirely or in great part of brass or iron. With a mouth so fine as it is possible to make these, and by reversing the position of the cutting iron, so as to give it a pitch of about 50°, the use of the top iron is not needed at all.

The value of the steam engines exported from the United Kingdom has slightly declined this year. It amounted May 31 to £1,090,717, as compared with £1,253,484, in the corresponding period of 1874, and £1,106,431 in the corresponding period of 1873. In these totals May in each of the three years figured for £274,317, £331,621 and £215,325, respectively. The aggregate value of the steam engines exported to May 31 this year to British India, was £140,362, as compared with £147,369 in the corresponding period of 1874, and £104,258 in the corresponding period of 1873; to Germany, to £129,678, against £163,323, and £172,759 in the corresponding periods of 1874 and 1873; to Australia, to £94,716, against £108,936, and £64,658 in the corresponding periods of 1874 and 1873; and to Russia, to £92,627, against £75,217, and £73,808 in the corresponding periods of 1874 and 1873.

Curtain's Iron Works, in Center county, Pa., are running full time with orders ahead.

A lead mine has been discovered near Mechanicstown, Md., on the land of Joseph Willhide.

The Wellsboro, Pa., *Agitator* says 130 workmen were discharged last week by the Blossburg Coal Company.

HENRY DISSTON & SONS,

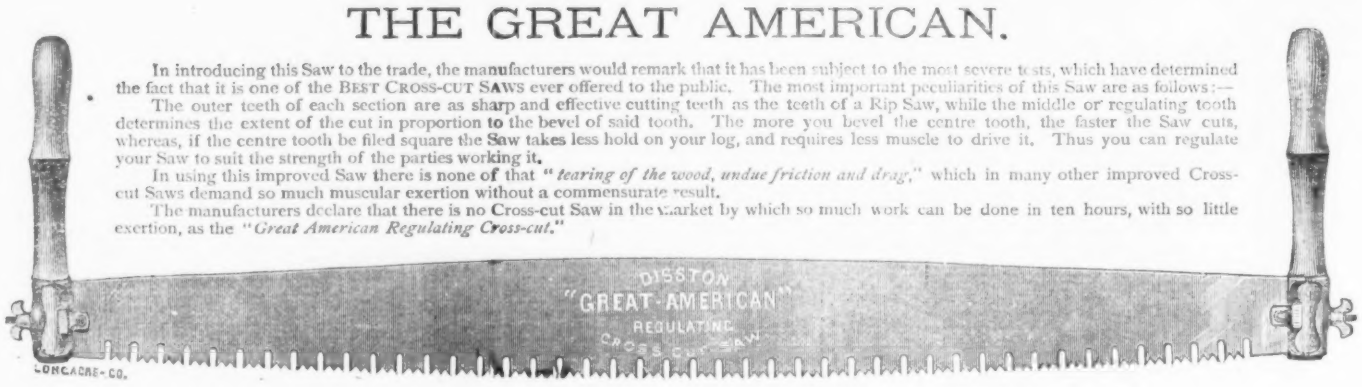
Keystone Saw, Tool, Steel and File Works.

Front and Laurel Streets, Philadelphia.

Branch Works, Tacony, Philadelphia. **Branch House, Randolph & Market Streets, Chicago, Ill.**

Our Celebrated CROSS-CUT AND WOOD SAWS.

THE GREAT AMERICAN.

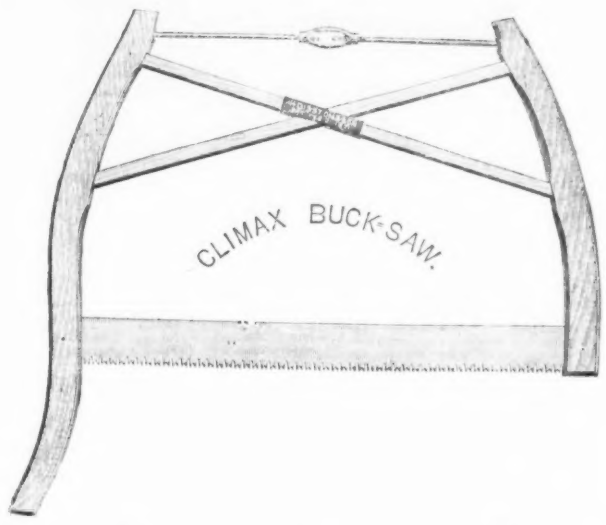


In introducing this Saw to the trade, the manufacturers would remark that it has been subject to the most severe tests, which have determined the fact that it is one of the BEST CROSS-CUT SAWS ever offered to the public. The most important peculiarities of this Saw are as follows:—

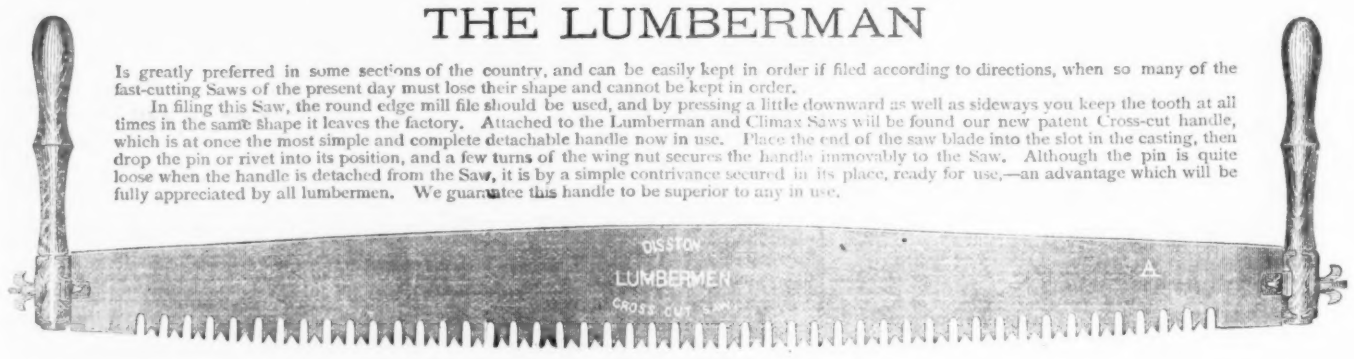
The outer teeth of each section are as sharp and effective cutting teeth as the teeth of a Rip Saw, while the middle or regulating tooth determines the extent of the cut in proportion to the bevel of said tooth. The more you bevel the centre tooth, the faster the Saw cuts, whereas, if the centre tooth be filed square the Saw takes less hold on your log, and requires less muscle to drive it. Thus you can regulate your Saw to suit the strength of the parties working it.

In using this improved Saw there is none of that "*tearing of the wood, undue friction and drag*," which in many other improved Cross-cut Saws demand so much muscular exertion without a commensurate result.

The manufacturers declare that there is no Cross-cut Saw in the market by which so much work can be done in ten hours, with so little exertion, as the "*Great American Regulating Cross-cut.*"

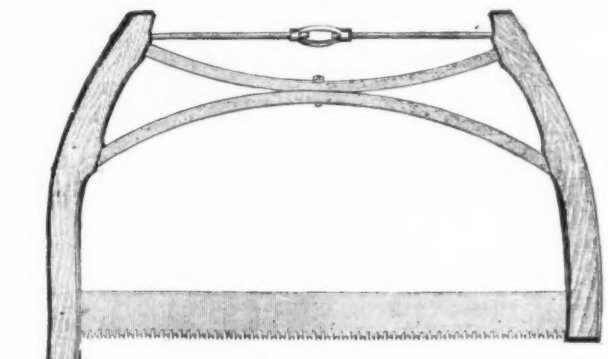


THE LUMBERMAN



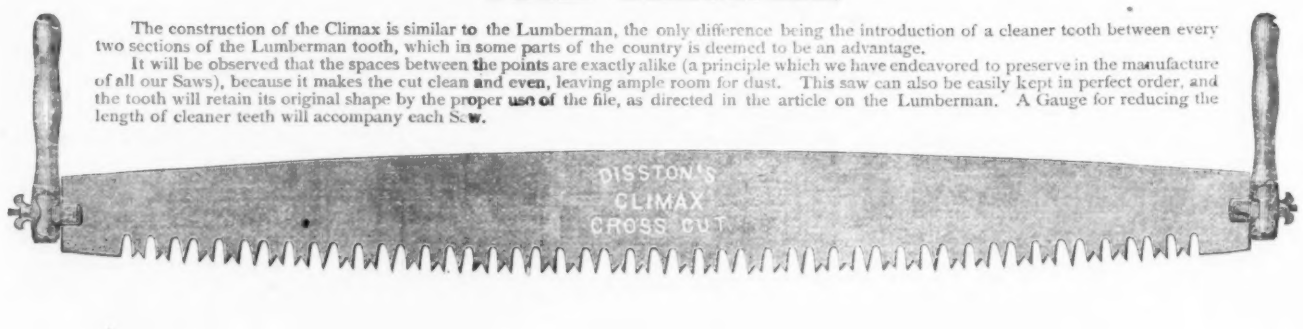
Is greatly preferred in some sections of the country, and can be easily kept in order if filed according to directions, when so many of the fast-cutting Saws of the present day must lose their shape and cannot be kept in order.

In filing this Saw, the round edge mill file should be used, and by pressing a little downward as well as sideways you keep the tooth at all times in the same shape it leaves the factory. Attached to the Lumberman and Climax Saws will be found our new patent Cross-cut handle, which is at once the most simple and complete detachable handle now in use. Place the end of the saw blade into the slot in the casting, then drop the pin or rivet into its position, and a few turns of the wing nut secures the handle immovably to the Saw. Although the pin is quite loose when the handle is detached from the Saw, it is by a simple contrivance secured in its place, ready for use,—an advantage which will be fully appreciated by all lumbermen. We guarantee this handle to be superior to any in use.



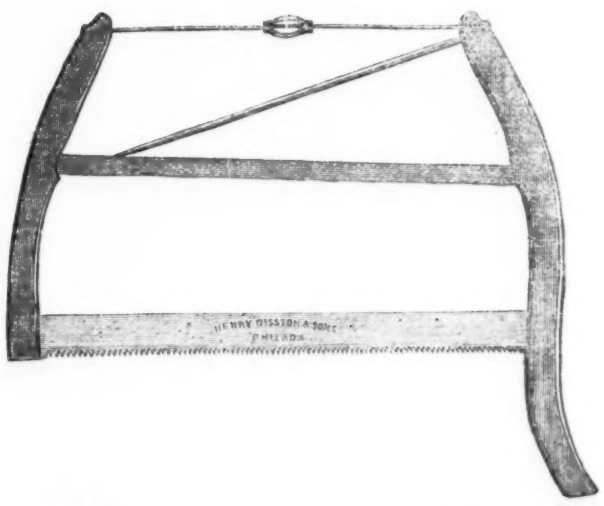
"ARCH FRAME" WOOD SAW.

THE CLIMAX.

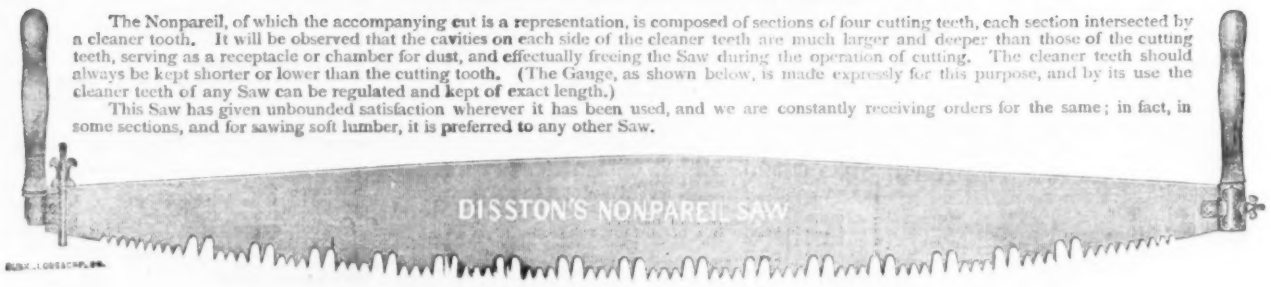


The construction of the Climax is similar to the Lumberman, the only difference being the introduction of a cleaner tooth between every two sections of the Lumberman tooth, which in some parts of the country is deemed to be an advantage.

It will be observed that the spaces between the points are exactly alike (a principle which we have endeavored to preserve in the manufacture of all our Saws), because it makes the cut clean and even, leaving ample room for dust. This saw can also be easily kept in perfect order, and the tooth will retain its original shape by the proper use of the file, as directed in the article on the Lumberman. A Gauge for reducing the length of cleaner teeth will accompany each Saw.



THE NONPAREIL.



The Nonpareil, of which the accompanying cut is a representation, is composed of sections of four cutting teeth, each section intersected by a cleaner tooth. It will be observed that the cavities on each side of the cleaner teeth are much larger and deeper than those of the cutting teeth, serving as a receptacle or chamber for dust, and effectually freeing the Saw during the operation of cutting. The cleaner teeth should always be kept shorter or lower than the cutting tooth. (The Gauge, as shown below, is made expressly for this purpose, and by its use the cleaner teeth of any Saw can be regulated and kept of exact length.)

This Saw has given unbounded satisfaction wherever it has been used, and we are constantly receiving orders for the same; in fact, in some sections, and for sawing soft lumber, it is preferred to any other Saw.

DISSTON'S WOOD SAW FRAME.

GAUGE FOR REGULATING CLEANING-TEETH.

The Cleaning-Teeth of all Saws should be somewhat shorter than the Cutting-Teeth, and, although shortened, they should be of uniform length throughout. The inner edge of the Gauge rests on the points of the Cutting-Teeth, the Cleaning-Teeth projecting through the opening in center of Gauge. Reduce the projecting points by means of a File, until arrested by the edges of the Gauge, which is made of hardened steel. Thus Tooth after Tooth can be rapidly and correctly reduced to an even length by any unskilled operator.

Showing the Gauge in Position for Filing the Cleaner-Tooth.

New York Wholesale Prices, August 25, 1875.

HARDWARE.

Anvils.
Solid Cast Steel... ℘ ℔ 14c
Wright's... ℘ ℔ gold 11c; over 250 ℔s 11½c, gold
Armitage's Mouse Hole... gold 11c
Wilkinson's... ℘ ℔ gold 11c
Eagle Anvils... ℘ ℔ 8c

Apple Parers.
Domestic; Turn Table; Lightning; Hudson's; Reading; Union... $7.75 ℘ doz
Skeleton Paring, Coring and Slicing... $8 00 ℘ doz net
Bay State, Paring, Coring and Slicing... $15 00 dis 10 %
Climax Slicer... 8 00

Augers and Bits.
Douglass; Ives; Beecher (French, Swift & Co); Griswold; Challenge... 1st quality... dis 40&10 %
Nobles Mfg. Co... dis 40 @ 40&5 %
Cook's... d's 40&10&10 %
Diamond Hardware Co... dis 25&10&10 %
Snell Mfg. Co... dis 22½ @ 25 %
Jennings' Bits... dis 10 %
Lewis' Single Twist Bits... dis 30 %
Andrews' Bits... dis 25 %
Griswold's Patent Bits... dis 20 %
Expansive Bits, Clark's... small, $18; large, $26—dis 15 %
" " Ives'... $20 @ $30—dis 30 %
" " Blake's... $20—dis 40 %
Hollow Augers, Douglass'; " " Ives'; " " French, Swift & Co... dis 40 %
" " Bonney's Adjustable. ℘ doz $48—dis 25 %
" " Stearns'... ℘ doz $48—dis 25 %
" " Ives' Expansive... each $4·50—dis 40 %
" " Universal Expansive, each $4·50—dis 10 %
Gimlet Bits—Screw, $7·50; no screw, $9... dis 20&10 %
Double Cut Gimlet Bits, Shepardson's... dis 20 %
" " " Hartwell's... dis 50 %
" " " Douglass'... dis 20&10 %
" " " Ives'... dis 30 %
Morse's Bit Stock Drills... dis 20 %
L'Hommedieu's Ship Augers... dis 15 @ 20 %
Watrous Ship Augers... dis 18 %
Vaughan's Post Hole—
6 in. $23 00; 7, 8 and 9 in. $25 per doz... dis 20 %

Awls, Brad Sets, &c.
Awls, Sewing... per gross $1·20—dis 10 %
" Shouldered Peg... per gross 2·25—dis 10 %
" Patent Peg... per gross ·60—dis 10 %
" Shouldered Brad... per gross 2·25—dis 10 %
Brad Sets, Aiken's... per doz $14·40—dis 25&10 %
" Nos. 42 and 43... dis 40&10 %
" Clark's... dis 30&10 %
" Stanley's Excelsior... $13 50—dis 25&10 %

Axes.
Brook's... per doz $12 00 @ 14 00 net
Blood's... per doz $15 00 @ 16 50—dis 20 %
Hunt's... ℘ doz $12 50 @ 14 00
Collins'... ℘ doz 11 00 @ 15 50 net @ dis 5 %
B. Clark's (J. C. W. & Co.) bron'd or red. ℘ doz $10 00 net
Hurd's... ℘ doz 10 50 @ 12 50
Simmons'... ℘ doz 11 00 @ 11 50
Morris'... ℘ doz 12 50 @ 13 50
Red Jacket... ℘ doz 12 00 @ 12 50
Mann's... ℘ doz 11 50 @ 13 00
" Double Bitted... ℘ doz 21 50 @ 22 00
Underhill's... ℘ doz 12 00 @ 13 00
" Crown... ℘ doz 12 50 @ 13 50
John Leverett's... ℘ doz 12 50 @ 15 50
Ten Eyck... ℘ doz $10 50 @ 12 50 net
M. H. Jones & Co... ℘ doz 10 50 @ 11 50 net
Nobles Mfg. Co... per doz $10 50, net
Elephant... per doz $10 50 net

Axle Grease.—Frazer's... ℘ ℔ 6c.

Balances... dis 35 %

Bands.—Plated... new list dis 50&5 %
Iron Rim... new list dis 25&5 %
Brass (Plated list)... new list dis 50, 10&5 %
Oroide... new list dis 50&5 %

Bells.
Hand, Light Brass... dis 70&10 %
" Extra Heavy... dis 40&10 %
" White Metal... dis 50&10 %
" Silver Chime... dis 15&10 %
" Swiss... dis 25 %
" Globe (Cone's Patent)... dis 15&10 %
Gong Abbe's... dis 15&10 %
" Yankee... dis 30&10 %
" Barton's... dis 35 %
Crank, Taylor's... dis 25 %
" Brook's... dis 50 %
" Cone's... dis 10 %
" Connel's... dis 50&10 %
Lever, Sargent's... dis 80&10&10 %
" Taylor's... dis 25 %
" Hart, Bliven & Mead Mfg. Co... dis 50&10 %
Pull, " " " ... dis 50&10 %
" Brook's... dis 50 %
" Western... dis 25 %
Call... dis 15 %
Cow—Common Wrought... dis 20&10 %
" Western... dis 20&10 %
" " Sargent's... dis 50&10&10 %
" Kentucky "Star"... dis 20&10 %
" " Sargent's... dis 50&10&10 %
" Dodge's Genuine Kentucky, new list—
Nos. 0 1 1½ 2 3 4 5 6 Hog.
$12·00 10·00 9·00 8·00 6·00 5·00 3·50 2·50 5·00—dis 45 %
" Yaw's Genuine... dis 30 %
" Texas... dis 35 %

Bellows.
Blacksmiths', Common... dis 15 %
" Extra and Pittsburgh Pattern... List net
Moulders'... dis 20 %
Hand Bellows... dis 10 %

Blind Adjusters.—Domestic... ℘ doz $3—dis 20 %

Blind Fasteners.
Mackrell's... dis 30 %
Van Sand's, No. 2000, $14·00; No. 3705, $10·50... net
Washburn's Patent... ℘ gross $14 00 net
Merriman's... new list net

Blind Staples.
Boardman's Patent, ⅜ in. and larger... ℘ ℔ 37 c
" ¼ in... " 42 c

Blocks.
Tackle, Rope and Iron Strapped, Providence Tool Co.'s list... dis 30 %
Burr's... dis 10 %
Stanley Rule and Level Co... dis 25&10 %

Bolts.
Cast Iron Barrel, Shutter, &c... dis 60&10 %
Cast Iron Chain... dis 60&10&10 %
Wrought Iron Barrel... dis 50, 10&10 %
" " Square... dis 50, 10&10 %
" " Shutter... dis 60&10 %
Wrought Iron Flush, Stanley's... dis 15&10 %
" " " Sargent's... dis 50&10&10 %
Carriage and Tire, Common... dis 75 %
" " Norway Iron... dis 50&10 %
" " R. B. & W... (old list) dis 60 %
" " " Philadelphia, Star... dis 55 %
" " " Eagle... dis 55 %
" " " Shelton's... (old list) dis 60 %
Union Nut Company, old list... dis 60&10 %
Stove... dis 25 %
" R. B. & W... dis 25 %
" Shelton's Shaved Head... dis 25 %

Borax.... 15c. ℘ ℔

Boring Machines.
Kellogg's... dis 15 %
Snell Mfg. Co., Rice's Patent... dis 20 %
" " Regular... dis 20 %
Douglas Mfg. Co... No. 5, $3·25; with Augers, $5·00 net
No. 2, 4·00 " " 6 00 net
Parr's... dis 30&10 %
Phillips' Angular, complete with Augers... each $7 25
Mortising Machines, $20·00 each... dis 20 %

Bow Pins.
Union Nut Co... new list dis 50&10&5 %
Hotchkiss'... dis 50 @ 55 %
Humason, Beckley & Co.'s... dis 50&10&5 %
Sargent & Co.'s... dis 50&10&10 %

Braces.
Barber's Patent... dis 40&5 %
Q. S. Backus... dis 40&10 %
Wilson Mfg. Co... dis 10 %
Spofford's Patent... dis 50 %
Noble's Patent... dis 40&5 %
Ives Novelty... dis 40&7½&10 %
" Hamden... dis 15&10 %
Common Ball (American)... dis 15&10 %

Brackets.—Shelf... dis 60&10 @ 65&10 %

Bright Wire Goods... dis 65&10&10 %

Butt Rings.—Union Nut Co., new list. dis 50&10&5 %
Sargent's... dis 60&10 %
Hotchkiss'... 2½ in., $2·25 net

Bung Hole Borers.
Common and Ring... dis 20&10 %
Ives' Tap Borers... dis 10&10 @ 25 %
Enterprise Mfg. Co... dis 20 %

Butchers' Cleavers.
Humason & Beckley Mfg. Co... dis 20&10 %
Bradley's... dis 25 %
Beatty's... dis 20 %

2	3	4	5	6	7	8	8
$19·00	$21·50	$24·00	$27·00	$30·00	$33·50	$36·50	$40·00

Hart Mfg. Co... dis 45&10 %

0	1	2	3	4	5	6
$25·25	$29·75	$34·25	$38·75	$43·25	$48·50	$54·00

Butts.
Wrought Brass... dis 30 %
Cast Brass... dis 20 %
Common Cast, not Drilled.
Fast Joint, Narrow... New list July " dis 30&10 %
" Broad " dis 40&10 %
" " Jap'd... " dis 35&10 %
Loose Joint, Narrow and Broad " dis 50&10 %
" " " Jap'd " dis 45&10 %
Parliament Butts & Mayer's Hinges " dis 40&10 %
Loose Pin... " dis 45&10 %
" Japanned... " dis 55&10 %
" " Plated Tips... " dis 30&10 %
Drilled and Wired.
Fast Joint, Narrow... New list July 1, dis 25&10 %
" Broad " dis 35&10 %
" " Jap'd, with and without Acorns... " dis 30&10 %
Loose Joint... " dis 45&10 %
" Jap'd with and without Acorns... " dis 45&10 %
Parliament and Mayer's Hinges " dis 35&10 %
Loose Pin... " dis 40&10 %
" Japanned... " dis 50&10 %
" " Plated Tips " dis 45&10 %
Union Mfg. Co., Figured Enameled L. J... dis 55&10 %
" " Nickel Pl. L. J. Capped Iron and Bronze... dis 33⅓&10 %
" " Boston Finish, Plain, without Acorns... dis 80&5 %
" " Boston Fin. with Iron Acorn... dis 75&5 %
" " " " Silvered " ... dis 65&5 %
Wrought Iron.
Fast Joint, Narrow, Lt. and Regular... dis 30 %
" Broad... dis 35 %
Loose Joint, Narrow and Broad... dis 35 %
Table Butts, Back Flaps, &c... dis 30 %
Inside Blind, Regular... dis 30 %
" " Light... dis 40 %
Loose Pin, Wrt... dis 35 %
Am. Spiral Spring Butt Co., list May 1st... dis 25 %
Union Spring... dis 20 %
Blind Butts, Parker... dis 60&10 %
" Palmer... dis 40 %
" Seymour... dis 55&10 %
" Shepard... dis 60 @ 60&10 %
" Lull & Porter... dis 60 %
" Nicholson... dis 45&10 %
" Huffer... dis 33⅓&10 %
" Garretson, No. 1... dis 60 @ 60&10 %
" Clark's, Nos. 1, 3 and 5... dis 60 @ 60&10 %
" Clark's No. 3½... dis 60&10 @ 65&10 %
" " Nos. 2, 4, 4½, 6, 8, 10... dis 40 %

Caps—Percussion, per 1000.
G. D... 37 @ 40c
Ely's E. B... 1-4s, 58c.; 1-10s, 70c. gold
" Double Waterproof, 1-4s, $1·45; 1-10s, $1·52½c., gold
Colt's... 1-10s 80c gold

Carpet Sweepers.
Union... each $2 75 net
Welcome... each 2 75 net

Cartridges.—Metallic... dis 50&10 %

Cards.—Horse and Curry... dis 30&10 %
Cotton... dis 10&10 %
Wool... dis 15&10 %

Carpet Stretchers.
P. S. & W... per doz $2 00; dis 40&5 %
Sargent's... per doz $2·88—dis 50&10&10 %

Casters.
Bed... dis 30&10 @ 40 %
Plate and Shallow Socket... dis 40&10 %
Deep Socket... dis 33⅓ %

Cattle Leaders... new list dis 60&10 %

Chain.
English Coil... net gold

℘ ℔ ...	11½	8¾	7¾	7½	7¼	7c
	3-16	¼	5-16	⅜	7-16	½

Trace, 6½-10-2... by the cask, ℘ pair, gold 55c
Trace, 7-10-2... by the cask, ℘ pair gold, 62c
German Halter Chain... dis 20 % gold
German Coil... dis 20 % gold
Galvanized Pump Chain... ℘ ℔ 13c
Jack Chain, Iron... dis 50&10 %
" Brass... dis 40&10 %

Chalk.
White... ℘ gross, 57c net
Red... ℘ gross, 90c net
Blue... ℘ gross, $1·00 net
White Crayons... ℘ gross, 16¼c net

Chisels.
Socket Framing, Douglass, Extra... dis 60&10&10 %
" " Crossman... dis 50&15&10 %
" " Buck Bros... equivalent to dis 50&15 %
" " Hart Mfg. Co... dis 60&10 %
" " Merrill... dis 60&10 %
" Firmers, Douglass, Extra... dis 60&10 %
" " Crossman... dis 50&10&10 %
" " Buck Bros... equivalent to dis 50&15 %
" " Hart Mfg. Co... dis 60&5 %
" " Merrill... dis 60 %
Socket Corner... dis 60&10 %
Tanged Firmers... dis 40&10 @ 50 %
" " Butcher's... $5·50 to £ gold
" " Newbould's... $5·50 to £ gold
" " Spear & Jackson's... $5·50 to £ gold
" " Buck Bros (Shank)... $5·5 to £ gold

Clamps.
Cabinet... dis 60&10 %
Gray's... dis 20 %
Lambert's... dis 20 %
Providence Tool Co... dis 10 %

Clips, Axle.
Norway or Best... dis 40 %
Superior... dis 50 %
"Star," Superior Philadelphia... dis 45&5 %

Coal Shovels.
Edgar's Pat. "Gem," Short and Long H'dled... dis 15 %
Iron Handled... ℘ doz, $ 85 @ 1 25
Wooden Handled... ℘ doz, 1 00 @ 2 00

Coal Hods.—Smith, Burns & Co... dis 15 @ 25 %

	14	15	16	17	18 inch.
Japanned	$6·00	6·35	6·75	7·50	8·00 per doz.
Galvanized	9·50	10·00	10·75	11·50	12·50 "

Morning Glory Funnel Hods—

No.	15	16	17
Japanned	$9·00	10·50	12·00 per doz
Galvanized	13·00	14·50	16·00 "

Sidney Shepard & Co.'s new list... dis 10 %

Cockeyes... 1¼ in., 28c.; 1⅜ in., 33c.; 1⅝ in., 37c. net

Cocks.
Brass Racking... dis 33⅓ %
Lock and Globe... dis 33⅓ %
Lever Bibbs... dis 22½ %
Ale and Beer... dis 20&10 @ 25&10 %

Coffee Mills.
Board and Box... dis 15 @ 20 %
Brighton... dis 20 %
Increase Wilson's... dis 20 %
Selsor's Pat... $9·50, $10·50—dis 25 %
American (Enterprise Mfg. Co.)... dis 20 %
French Steel... dis 15 %
The Swift... dis 20 %

Compasses and Dividers.
Bemis & Call Co.'s... dis 35&10 %
Cook's... dis 15 %
Excelsior... dis 30 %
Peck Stow & Wilcox... dis 25 %
Miller's Patent... dis 25 %

Coopers' Tools.
Bradley's... dis 15 @ 20 %
Chas. E. Little... dis 20 @ 25 %
Swan & Brombacher... dis 15 @ 20 %

Corkscrews... dis 25 %

Corn Knives and Cutters.
Bradley's... dis 10 %

Crow Bars.
Cast Steel... ℘ ℔ 11c. net
Iron, steel points... ℘ ℔ 5c

Crucibles.—Gautier & Co... ℘ No. 5½c

Curling Irons, &c.
½, ⅝, ¾ in., $1·80, $2·00, $2·40... dis 10 %
Curling Tongs... ℘ doz $6 50—dis 15 %
Pinching Irons... ℘ doz 7 50—dis 20 %

Curry Combs.
Hotchkiss' & Kellogg's, Iron & Brass, old list... dis 40 %
Fitch's (List of No. 240, $1)... dis 20&10 %
Rubber... ℘ doz, $9·00—dis 15 %
Wood Tooth (Fuller Bros.)... per doz $2·25 net

Curtain Pins.—Silvered Glass... old list dis 52½ %

Cutlery.
American Table } Meriden } New list Jan. '75, dis 25 %
American Pocket } Cutlery Co } ... dis 25 %
Am. Pocket—Humason & Beckley Mfg. Co... dis 20&10 %
Am. Miller Bro.'s Cutlery Co... dis 25 %
Naugatuck Cutlery Co... dis 25 %

Dippers.
Britannia... per doz 7·50—dis 30 %; by bbl. dis 33⅓ %
Cocoa, Plain... per doz $3·25—dis 20 %
" Rimmed... per doz 3·75—dis 20 %

Dog Collars.
Embossed Gilt... dis 20 %
Leather... dis 20 %
Brass... dis 25 %

Door Springs.
Gray's... $7·50 ℘ doz—dis 50&10 %
Torrey's Patent... $7·50 ℘ doz—dis 60 %
Johnson's... per doz $3 00 @ 4 00
Palmer's Japanned No. 6... ℘ doz $5·00; " Coppered " ... " 6·00; " Silvered " ... " 8·00 } dis 20 %
Challenge.—
Japanned... No. 9, per doz $4·00; No. 7, " 5·00; No. 6, " 6·00 } ... dis 40 %
Gem.—No. 1 large, Japanned... per doz $4·00; No. 2 medium... per doz 3·50; No. 3 small... per doz 3·00 } dis 10 %
Barker's Concealed... dis 12½ %

Drawing Knives.
Crossman's No. 1... dis 50&15&10 %
Douglass, Extra... dis 60&10&10 %
Hart Mfg. Co., No. 1... dis 60 %
Merrill... dis 60&10 %
Nobles Mfg. Co... dis 15 %
Bradley's... dis 25 %
Adjustable Handle... dis 15 %

Drills and Drill Stocks.
Blacksmiths'... each $2 60 net
" Self-Feeding... each $8 00 net
Breast, P. S. & W... dis 45 %
" Miller's Falls... dis 25 %
" Aiken's... dis 40 %
" Hotchkiss'... dis 10 %
" Wilson's... dis 10 %
Ratchet, Merrill's... dis 20 %
" Ingersoll's... dis 35 %
" Whitney's... dis 20 %
" Weston's... dis 20 %
" Moore's Triple Action... dis 20 @ 25 %
Wilson's Drill Stocks... dis 10 %
Automatic Boring Tools... each $2·75—dis 20 %

Drill Chucks.—The Danbury... each 10·00, dis 20 @ 25 %
Beach Patent (Morse)... dis 15 %

Egg Beaters.
Monroe's... 8 in. 10 in.
Per doz $8·00 9·00... dis 10 %
Dover... ℘ doz $6·00—dis 10 %
National... ℘ doz $4·50—dis 20 %
Peerless... ℘ doz $3·00—net

Emery.
Genuine Chester—Regular Nos... ℘ ℔ 6c; " Flour and FF... ℘ ℔ 4c } dis 10 %
Washington Mills—Regular Nos... ℘ ℔ 8c
" Flour... ℘ ℔ 5c

Enameled and Tinned Ware.
Kettles... dis 30 @ 40 %
Sauce Pans... dis 25 %
Glue Kettles... dis 20 @ 25 %
Tinned Saucepans... dis 25 %

Escutcheons.
Door Lock... Same discounts as Door Locks
Brass Thread... dis 60&10 %
Wood... dis 25 %

Faucets.
Fenn's... dis 50 %
" Cork Stops... dis 40 %
Star... dis 55&10 %
Frary's Patent Petroleum... dis 15&10 %
Taylor's Pattern "... dis 20&10 %
Wood and Metallic... dis 40 %
Wood, Cork Lined... dis 60&10 %
Enterprise Mfg. Co., Self-Measuring... dis 20 %

Felloe Plates... ℘ ℔ 15c; dis 25 %

Files.
American File Co... $5 00 to £ currency—dis 15 @ 20 %
Arcade File Works... $5·00 to £ currency
Auburn File Works... $5 00 to £ currency
Nicholson... new list, Jan. 1, 1875, net
Hartford File Co... $5 50 to £ currency—dis 10 %
L. B. Heller & Co... $5 00 to £ currency
Heller & Bros... $5 00 to £ currency
"Western"... 5 00 to £ net
Wheeler, Clemson & Co... $5 00 to £ currency
Rothery's... $5 to £ currency
J. & Riley Carr... 5 25 to £ gold
" " Horse Rasps... 5 50 to £ gold
Stubs'... 8 50 @ 9 00 to £ gold
Butcher's... 5 25 to £ gold
Walter Spencer & Co.'s "Diamond"... 5 00 to £ gold
Spear & Jackson's... 5 00 to £ gold
Jowitt's... 5 00 to £ gold
Newbould's... 5 25 to £ gold
W. K. & C. Peace's "Imperial"... 5 25 to £ gold
R. Ibbotson... 5 00 to £ gold
Turton Bros. & Matthews... $5 50 to £ currency
Ashworth's (Van Wart & McCoy). $5 00 to £ cur. dis 10 %
Fisher's... 4 75 to £ gold
Goodlad's... 4 00 to £ gold
Moss & Gamble... 5 25 @ 5 50 to £ gold
Thos. Turner & Co. (Peter A. Frasse & Co.) 5 00 to £ gold
" " Horse Rasps... 5 25 to £ gold
"Philo Sheffield," P. T. Co... 5 00 to £ gold
Limet & Co. (French)... 5 00 to £ gold

Fluting Machines.
Mrs. Coles' Pony.. 4 in., $4·75; 5 in., $5; 6 in., 5·50; 7 in., $6
Knox, with 4-inch Rolls... 3 80 each net
" " 6 " ... 4 25 each net
" " 8 " ... 6 75 each net
O. K... 6 50 each net
Peerless, 4-inch Rolls... 4 00 each net
" 5 " ... 4 75 each net
Excelsior, No. 1... 4 75 each net
" No. 2... 6 50 each net
Diamond... 7 50 each net
Champion, 6 inch rolls... 6 00 each net
" 4 inch rolls... 5 00 each net
Climax 7-inch Rolls... 8 00 each net
" 4½ " ... 6 50 each net
Empire... 4 00 each net
Eureka, No. 1, 7-inch Roll... 8 00 each net
" No. 2, 5-inch Roll... 6 00 each net
K. F. M., 4½-inch Roll... 5 50 each dis 15 %
" 6-inch Roll... 6 00 each dis 15 %
Myers' Fashion Fluter, 4½-inch Rolls... 2 75 each net
" Convex Brass Fluter, Sad Iron attachment... $1·75
Domestic Fluter... $1·50 each net
Fairy, Self-Heater... 00 each net
Geneva Hand Fluter... $15 00 per doz net

Fluting Scissors... dis 25&10 %

Forges.
'Empire" (W. P. Kellogg & Co.)... dis 20 %

Forks.
Hay, Manure & Spading... dis 33⅓ %
Plated A 1... dis 50 %

Fry Pans.
Burnished, P. S. & W., new list... dis 45 %

℘ doz...	$3·00	3·75	4·25	4·75	5·25	6·00	7·00	8·00	9·00
No. ...	0	1	2	3	4	5	6	7	8

Smith, Burns & Co., "Excelsior" Polished... dis 35 %

℘ doz...	$3·70	4·00	4·70	5·30	6·00	7·00	8·00	9·00
No...	1	2	3	5	6	7	8	

Gas Stoves.
Tifft & Howard... dis 20 %

Gauges.
Marking... dis 45&10 %
Wire... dis 10 %
" Smith's Patent... per doz $18·00, dis 40 %

Gimlets.
Nail and Spike... dis 25&10 %
Double Cut, Shepardson's... dis 20 %
" " Ives'... dis 25 %
" " Douglass'... dis 20&10 %

Grind Stone Fixtures
Sargent's Patent... dis 65&10 %
Reading Hardware Co... dis 65&10 %
J. F. Green & Bro... dis 20 %
Hart Mfg. Co.'s... dis 60&5&10 %
Rick Bros... dis 45&5 %

Hammers.
Emmet Hammer Co.'s Handled... dis 25 %
" " Sledge & Stone. ℘ ℔ 40c.; dis 40 %
Humason & Beckley Mfg. Co... dis 16⅔&10 %
Maydole's... dis 12 %
Cheney's... net
Verree... dis 5 %
Yerks & Plumb... dis 12½ %
Magnetic Tack... dis 25&10 %
Warner & Noble's... dis 10 %

Hand Cuffs and Leg Irons.
Tower's Hand Cuffs, $4 00 per pair; " Leg Irons $6 50 per pair } dis 35 %
Providence Tool Co.'s Hand Cuffs.. $15 per doz; " " Leg Irons ... 25 " } dis 10 %

Handles.
Door or Thumb Latches—

Nos.	0	1	2	3	4
Per doz	$1·80	1·00	1·18	1·35	1·50—dis 60 %

Roggin's Latches... 40c. @ 50c. net
Bronzed Iron Drop Latches... per doz $1·30 net
Wrought Chest... dis 60&10 %
Surface Chest... dis 65&10&10 %
Flush Chest... dis 60&10&10 %
Lifting... dis 60&10 %
Coffin... dis 50&10 @ 60&10 %
Saw and Plane... dis 25&10 %
Hammer and Hatchet... dis 10 %
Brad Awl... per gross $3 50—dis 20&10 %

Hickory Firmer Chisel,		ass'td	"	5 25—dis 20&10 %
"	"	large	"	6 50—dis 20&10 %
Apple	"	ass'td	"	6 00—dis 20&10 %
"	"	large	"	7 50—dis 20&10 %
Socket	"	ass'td	"	3 50—dis 20&10 %
" Framing	"	"	"	7 00—dis 20&10 %
File		"	"	4 00—dis 20&10 %
Auger		"	"	6 50—dis 20&10 %
"		large	"	8 00—dis 20&10 %

Patent Auger, Ives'... dis 25&10 %
" " Douglass'... per set $1 25—dis 10 %
" " Swan's... per set $1 00—dis 10&10 %

Hangers.
Barn Door... dis 65&10 %
"Anti-Friction" (Rider, Wooster & Co.)... dis 30&5 %
Novelty... dis 30 %

Harness Snaps.
Henshaw's... dis 25&10 %
Judd's... dis 40 %
Fitch's (Bristol)... dis 30 %
Hotchkiss'... dis 10 %
Andrews'... dis 25 %
Sargent's... dis 50&10 %
New York Wire... dis 20&20 %

Hatchets.—Isaiah Blood... dis 15 %

Shingling, Nos. 1 2 3...	℘ doz	$7 25	8 00	8 75
Claw, " 1 2 3...	℘ doz	7 75	8 50	9 25
Lathing, " 1 2 3...	℘ doz	7 50	8 00	8 50
Hunt's...				dis 10 %
Shingling, Nos. 1 2 3...	℘ doz	$7 25	8 00	8 75
Claw, " 1 2 3...	℘ doz	7 75	8 50	9 25
Lathing, " 1 2 3...	℘ doz	7 50	8 25	9 00
Hurd's...				dis 25 %
Shingling, Nos. 1 2 3...	℘ doz	$8 00	8 50	9 00
Claw, " 1 2 3...	℘ doz	9 00	9 50	10 00
Lathing, " 1 2 3...	℘ doz	8 00	8 50	9 00
Newark's Edge Tool Co.'s...				dis 25 %
Shingling, Nos. 1 2 3...	℘ doz	$6 50	7 00	7 50
Claw, " 1 2 3...	℘ doz	7 25	7 75	8 25
Lathing, " 1 2 3...	℘ doz	6 50	7 00	7 50
Yerkes & Plumb...				dis 15 %
Shingling, Nos. 1 2 3...	℘ doz	$7 00	7 50	8 00
Claw, " 1 2 3...	℘ doz	7 50	8 00	8 50
Lathing, " 1 2 3...	℘ doz	7 00	7 50	8 00

Simmon's... dis 15 %

Shingling, Nos. 0 1 2 3...	℘ doz $7 50	8 00	8 50	9 00
Claw, " 1 2 3...	℘ doz	9 00	9 50	10 00
Lathing, " 1 2 3...	℘ doz	8 00	8 50	9 00
Broad, " 1 2 3...	℘ doz	9 00	10 00	12 00
" " 4 5 6...	℘ doz	14 00	16 00	18 00
" " 7 8...	℘ doz	20 00	22 00	

Elephant... dis 25 %

Shingling, Nos. 1 2 3...	℘ doz $8 00	8 50	9 00
Claw, " 1 2 3...	℘ doz 9 00	9 50	10 00
Lathing, " 1 2 3...	℘ doz 8 00	8 50	9 00
J. P. Verree & Co...			dis 5 %
Shingling, Nos. 1 2 3...	℘ doz $7 00	7 50	8 00
Claw, " 1 2 3...	℘ doz 7 50	8 00	8 50
Lathing, " 1 2 3...	℘ doz 7 00	7 50	8 00
Underhill's...			dis 10 %
Shing'ling, Nos. 1 2 3...	℘ doz 7 25	8 00	8 75
Claw, " 1 2 3...	℘ doz 7 75	8 50	9 25
Lathing, " 1 2 3...	℘ doz 12 00	11 00	13 00
M. H. Jones & Co...			dis 25 %
Shingling, Nos. 1 2 3...	℘ doz $8 00	8 50	9 00
Claw, " 1 2 3...	℘ doz 9 00	9 50	10 00
Lathing, " 1 2 3...	℔ doz 8 00	8 50	9 00

Hay Knives.—"Lightning"... per doz $20·00 net

Hinges.
Gate, Western... ℘ doz $6·25—dis 60&10 %
" N. E... ℘ doz 11·25—dis 60&10&10 %
" N. Y. State... ℘ doz 7·20—dis 60&10 %
Rolled Plate... dis 65&10 %
" Raised... dis 65&10 %
Wrought Strap and T... dis 33⅓&10&5 %
Providence Plate. { 6 and 8 in. 11c ℘ ℔; over 8 in. 9½c ℘ ℔ } ... dis 30 %
Screw Hook and Strap... { 8, 10, 12 in. 6½c; 14 to 36 in. 5½c } ... net
Heavy Welded Hook... { 8 to 12 in., 6½c; 14 in. & up, 6c } ... net
Screw Hook and Eye... { ¾ to 1 in., 8½c; ⅝ in. 9½c; ½ in. 11½c } ... net

Hoes.
Solid Shank, C. S... ℘ doz $8 00—dis 35 %
Socket... ℘ doz 9 00—dis 35 %
Riveted Eye... ℘ doz 5 00—dis 35 %
Grub... dis 25 %
Planters... net @ dis 5 %
Scovill... add 33⅓ %
Scovill Pattern... net @ dis 5 %
Lane's C. S. Cresent, American Pattern... list net
" " " Scovil Pattern... add 10 %

Hooks.
Bird Cage... dis 60&10 @ 70&10 %
Cotton... dis 50 %
Belt... dis 55 @ 60 %
Bench—Hotchkiss' $5 00 ℘ doz... dis 10 %
" Weston's No. 1, $8·00; No. 2, $7·00 per doz net
" McGill's... $3 00 per doz, dis 10 %
" Skinner's... per doz $6·25, dis 20 %
Clothes Line, Harness, Wardrobe, Hat and Coat, Ceiling } Hart's list... dis 60&10&10 %; Sargent's list... dis 60&5&10 %; Reading list... dis 35&10 %
Wrought Staples and Hooks and Staples... dis 70&10 %
Wire Screw Hooks and Eyes... dis 65&10&10 %
Grass... dis 20 %
Whiffletree—Patent... dis 35 %
Hooks and Eyes—Malleable Iron... dis 60&10&10 %
" " Brass... dis 60&10&10 %

Horse Nails.

	Nos.	5	6	7	8	9	10
American Pressed...	℘ ℔	22c	20c	20c	20c	20c	20c
Ausable...	"	30c	27c	25c	24c	25c	22c
" P't'd & Pol'd..	"	31c	28c	26c	25c	24c	23c
" " & Blued..	"	32c	29c	27c	26c	25c	24c
Cortland...	"	29c	26c	24c	23c	22c	21c
Buffalo Forged...	"	31c	28c	26c	25c	24c	23c
Globe, P't'd & Pol'd...	"	31c	28c	26c	25c	24c	23c
National, Pointed and Polished, Pat. Fin...	"	28c	25c	23c	22c	21c	20c
National, Pointed and Polished, Ex. Fin...	"	30c	27c	25c	24c	23c	22c
Perkins' Pointed and Polished...	"	30c	27c	25c	24c	23c	21c
Perkins' Pointed and Blued...	"	31c	28c	26c	25c	24c	22c
Putnam...	"	32c	28c	26c	25c	24c	23c
Vulcan, P't'd & Blued.	"	33c	30c	28c	27c	26c	25c

Star Brand, 16c.; Morgan... 14c
Putnam... 2000 lbs., dis 5 %
Ausable, Am. Pressed, Perkins, Globe, National and New London... 1000 lbs., dis 5 %
Vulcan... 1000 lbs., dis 7½ %
Vulcan and Brundage... 500 lbs., dis 5 %

Horse Shoes.
Burden... ℘ keg, $5·12½
R. I. Horse Shoe Co., Perkins Pattern... ℘ keg, 5·12½
" " R. I. Pattern... ℘ keg, 5·87½
Mule Shoes... ℘ keg, 6·12½
Perkins' Snow... ℘ keg, 6·62½
Boston Rolling Mills Hand Made... ℘ ℔ 8c

Kettles.
Brass... ℘ ℔ 45c net
Enameled... dis 30 @ 40 %

Knives.
Ames' Butcher Knives... dis 20 %
" Shoe "... dis 15 %
" Bread "... ℘ doz $1·50—dis 15 %
Hay and Straw, "Wadsworth's"... dis 20 %
Table and Pocket... See Cutlery

Knobs.
Carriage (Jap'd 80 cents per gross)... dis 60&10 %
Base—Common... net
" Plush Tip... dis 10 %
" Elastic End, No. 8... dis 30&10 %
Door, Mineral... ℘ doz $2·25; " Por. Jap'd... ℘ doz 3·00; " " Plated... ℘ doz 7·00; " " Por... ℘ doz 7·50 } dis 40&5&2 %
Furniture, Plain... 75c gross inch, dis 10 %

Ladles.
Melting, Hart's... dis 55&10 %
" Sargent's... dis 50&10 %
" Reading... dis 15&10 %

Lanterns.
Tubular... No. 0, $11·00; No. 1, $14·00 net
Peerless... No. 5, per doz $11·75—dis 10&10 %
Brady's Patent... dis 10 & 10 %
Ætna... dis 10 & 10 %
Yankee... dis 10 & 10 %
De Beque... dis 10 & 10 %

Lard Presses.
Draw Cut, 14 inch... each $65 00—dis 20 %

Lemon Squeezers.
Porcelain Lined... per doz $7 00, dis 15 %
Eureka, Tinned... per doz, $10·00 dis 10 %
Dunlap's Improved... per doz $6·00 net

Lines.
Linen Fish... dis 20 %
Cotton Chalk... dis 40 @ 45 %
Sil. Lake Chalk... Nos. 0, 1, 2, 3, $6, 6·50, 7, 7·50, dis 20 %
Mason's... dis 20 %

Locks and Latches.
Cabinet—Gaylord... dis 25 %
" Eagle... dis 25 %
Trunk "... dis 25 %
Langstroth & Crane, Round Key... dis 40 %
" " Flat Key... dis 33⅓ %
Barnes & Deitz... dis 25 %
Continental... dis 20 %
Shepardson's... dis 20 %
American Lock Co... dis 33⅓ %
Plate... new list dis 40&2 %
Yale Lock Co... dis 40 %
Sargent & Greenleaf... dis 20 %
Trenton; Branford; Norwich; Russell & Erwin; Norwalk; Nashua; Mallory, Wheeler & Co.; P. & F. Corbin; Parker & Whipple; Jacobus & Nimick Mfg. Co. } ... dis 40&5&2 %
Padlocks, Russell & Erwin; " Mallory, Wheeler & Co.; " Wm. Wilcox & Co. } ... dis 40&5&2 %
" Romer's... dis 15 %
" Vulcan Hardware Co... dis 20 %
" New York Lock Co... dis 20 %
" J. H. McWilliams... dis 5 %
" Scandinavian Jail... dis 10 @ 15 %
" Barnes & Deitz... dis 25 %
" D. K. Miller Lock Co... dis 30 %
" Penn Lock Works... dis 20 %

Mallets.—Hickory and Lignumvitæ... dis 20 %

Meat Cutters.
Dixon's (P. S. & W.). Nos. 1 2 3 4
℘ doz. $14 00 $17 00 $19 00 $30 00 dis 10 %
Miles Challenge... Nos. 1 2 3
℘ doz. $22·00 $30·00 $40 00—dis 30 %
Perry's (P. S. & W.)... Nos. 200 300 400
℘ doz. $22·00 $27·00 $40·00—dis 10 %
Woodruff's (P. S. & W.)... Nos. 100 150
℘ doz. $15·00 $18·00—dis 10 %
Hales'... Nos. 11 12 13
℘ doz. $27 00 $33·00 $42·00—dis 35&2 %
Draw Cut... Nos. 5 6 7
Each $56·00 $90·00 $250 00—dis 20 %
American... dis 25 @ 25&5 %

No...	1	2	2½	3	4	B	5
Each...	$6·00	$9·00	$12·00	$15·00	$30·00	$60·00	$75·00

Molasses Gates.
Stebbins'... dis 65&10 %
" Tinned ends... dis 40&10 %
Bush's... dis 20 %
Lincoln's... dis 50&10 %
Weed's... dis 15 %

Mortars and Pestles.
Iron... net

Nail Pullers.
Taft's... per doz $24·00 net

Nails... 10d., $3·25 @ $3·35 net

Nuts and Washers.
Nuts... large, 6c; small, 8c off list.
Washers... large, 8c; small, 10c off list.

Oilers.
Miller's Zinc, Brass and Copper... dis 40 %
Sheet Metal Screw, Zinc... dis 37½ %
" " " Brass... dis 33⅓ %
Olmsted's... dis 25&10 %
Broughton's... dis 25&10 %
Malleable... per doz $5 00 dis 10 %
Prior's Patent or "Paragon"... dis 40 %

Ox Shoes.
Concave... ℘ ℔ 13c net

Ox Balls... dis 60&10 %

Pencils
Faber's Carpenters'... net
" Round Gilt... ℘ gross $6 00 net
Dixon's Lead... ℘ gross $4·50 net
" Lumber... ℘ gross 9·00 net

Picture Nails and Knobs.
Brass Head... dis 60&10 %
Porcelain Head... dis 55&10 %
Richards' Patent... dis 40 @ 40&10 %
Judd's... dis 60&10 %

Pinking Irons... per doz $2 75—dis 65 %

Planes.
First Quality... dis 55 %
Second Quality... dis 50 %
Bailey's Patent Adjustable... dis 25&10 %
Plane Irons, Butcher's... $5 50 to £ gold—new list
" Buck Bros... $5 50 to £ gold
" Bailey's Patent... dis 25&10 %
" Auburn Tool Co.'s... dis 25 %
" Greenfield Tool Co... net list
" Middletown Tool Co... net list
" Ohio Tool Co... dis 10 %
" Spear & Jackson's... 5 50 to £ gold—new list
" Sandusky Tool Co... dis 10 %
Plow Bits, Greenfield Tool Co... dis 10 %

Pliers and Nippers.
Button's Patent... dis 33⅓ %
Hull's Patent Nippers... dis 25 %
Leach's Patent Wire Cutters... per doz $6 50—dis 15 %
Gas Pliers... dis 25 %

Plumbs and Levels.
Stanley R. & L. Co.'s Pat. Adjustable... dis 65&10 %
" " " Non-Adjustable... dis 65&10 %
Chapin's... dis 66⅔&10 %
Standard Rule Co.'s New Adjustable... dis 60&10 %
Standard Rule Co.'s Non-Adjustable... dis 60&10&10 %
Pocket Levels... dis 50&10 %
Johnson's Patent Adjustable... dis 60&10 %

Pulleys.
Hot House and Tackle... dis 60&10 %
Jap'd Screw... dis 60&10 %
Brass Screw... dis 60&10 %
Jap'd Side... dis 60&10 %
" Clothes Line... dis 60&10 %
Hay Fork... per doz $4 50 @ 5 00, dis 10 %

Pumps.
Douglas Cistern, etc... new list dis 25 %
" S. & F... new list dis 20 %
Union Mfg. Co's. Cistern and Pitcher... dis 25 %
" " " Rams... dis 20 %
" " " Garden Engines... dis 10 %
Cucumber (Burlingham & Purdy)—
6 ft. No 3, with 12 ft. pipe... $4·00 net
6 ft. No. 1, with 12 ft. pipe... 4·50 net
From 6 to 36 ft. add 20 cents per ft.
Pipe, 8c. per ft.; Coupling, 20c. per ft.

Punches.
Belt or Drive... per doz $1·50 net
Spring... per doz $7·00—dis 20&10 %

Rail.
Sliding Door, Wrought Brass... ℘ ℔ 44c., dis 10 %
" " Iron, Painted... ℘ foot 9c—dis 55&10 %
Barn Door, ⅜, ⅝ and ¾ inch... dis 60&10&10 %
" " for N. E. Hangers... dis 60&10&10 %

Rakes.
Cast Steel... dis 35 %

$8 00	9 00	10 00	11 00
8	10	12	14 teeth.

Malleable... dis 35 %

$5 00	5 50	6 00	6 50
9	11	13	15 teeth.

Razor Straps.
Evan's... dis 25&10 %
Genuine Emerson (B. F. Badger or C. Emerson)... dis 25 %
Imitation Emerson... ℘ doz $2·75—dis 40 %
Hunt's... dis 40 %
Chapman... dis 10 @ 15 %
Torrey's... dis 10&10 %
Saunder's... net @ 10 %

Rivets.—Old Colony.
Iron and Tinned... dis 25&7½ %
In bulk... dis 7½ %
Copper Rivets and Burrs... dis 20 %

Nos.	7	8	9	10	11	12	13	14	15
Per lb.	49c	50c	52c	54c	56c	58c	60c	65c	70c

Rivet Sets... net

Rods.
Stair... dis 33⅓ %
" American Patent... dis 33⅓ %

Rollers.
Barn Door... revised list dis 60, 10&10 %
Novelty... dis 10 %

Rope. Manufacturers' List of May 10, 1875.
Manila... ½ inch and larger ℘ ℔ 15 c
" ... ⅜ inch ℘ ℔ 15½c
" ... ¼ and 5-16 inch ℘ ℔ 16 c
Manila Lath Yarn and Tar'd Rope... ℘ ℔ 14½c
" Hay Rope... ℘ ℔ 15½c
Sisal... ½ inch and larger ℘ ℔ 12 c
" ... ⅜ inch ℘ ℔ 12½c
Sisal... ¼ and 5-16 inch ℘ ℔ 13 c
" Hay Rope... ℘ ℔ 12½c

Rules.

	Boxwood.	Ivory.
Chapin's...	dis 66⅔&10 %	dis 50&10 %
Stanley...	dis 70 %	dis 55 %
Standard...	dis 70 %	dis 50&10 %
Stephens'...	dis 70&10 %	dis 55&10 %
Willis Thrall & Son...	dis 55&10 %	dis 45&10 %

Sad Irons.
From 4 to 10 lbs... ℘ ℔ 3¾ @ 4c net
Sad Iron, Nickel Stand attached... ℘ ℔ 9c
Self-Heating... per doz $10 00 net
" " Tailors'... per doz 22 50 net

Sand Paper.
Beader & Adamson's Flint, 00 to 1½... $4 25 ℘ ream; " " " 2, 2½ & 3. 4 75 "; " " " Assorted. 4 25 "; " " Star... ℘ ream $3 25; " " Emery... ℘ ream $6 50 @ 11 50 } dis 15 %
New England, same list as B. & A. Flint... dis 15 %
H. B. & M. Roman Flint... dis 15 %

Sash Cord.
Common... ℘ ℔ 18 @ 20c. net
Patent... ℘ ℔ 24c. net
Silver Lake, Russia Flax... ℘ ℔ 55c; " " White Cotton... ℘ ℔ 55c; " " Drab Cotton... ℘ ℔ 60c } net

Sash Locks.
Clark's, Nos. 1 and 2, $10·00 per gross... dis 33⅓ %
Ferguson's... dis 33⅓ %
Norwich... dis 15 %
Walker's... list net
New England... dis 20 %

Sash Weights.—Solid Eyes... ℘ ℔ 2c

Sausage Stuffers or Fillers.
Miles... ℘ doz $20—dis 10 %
Stow or Perry... ℘ doz No. 1, $15; No. 0, $21—dis 15 %
Draw Cut No. 4... each $30 00—dis 20 %

Saw Frames... per gross $18 00—dis 10&10 %

Saw Rods... $10 list, dis 10&10 %

Saws.
Spear & Jackson's old pattern... $4 50 to £ gold
Spear & Jackson's American Pattern... $3·55 to £ gold
John Spear... $3 60 to £ gold
Am. Saw Co... new list
Perforated Cross Cuts, all kinds... 68c ℘ foot
Inserted Tooth... dis 10 %
All else... dis 12½ %
Disston's Circular... dis 20 %
" Mill... dis 25 %
" Cross Cut... dis 15 %
" other kinds... dis 12½ %
H. W. Peace's Circulars... dis 25 %
" Other kinds... dis 20 %
Wm. McNiece's Hand, Cross Cut and Circular... new list dis 15 %
Wm. McNeice's Patent Pole Pruning Saw... dis 10 %
" " Compass Saw... net.
E. M. Boynton's Lightning... dis 40 %
" Others... dis 15 %
Wheeler & Clemson Mfg. Co.'s Hand... dis 15 %
" " " Cross-Cut... dis 30 %
Livingston's Butcher and Kitchen... dis 12½ %
" Framed Wood—

Nos.	101	102	103	105	106
Per doz	$12·00	10·00	12·00	8·00	7·00—net

Saw Sets.
Stillman's Genuine... ℘ doz $5·00—dis 10 %
" Imitation... ℘ doz 3·25—dis 20 %
Aiken's Pattern... ℘ doz 7·00—dis 25&10 %
" Genuine... ℘ doz $15·00—dis 25 %
Hart's Patent... dis 15 %
Nash's... dis 20&10 %
Bemis & Call's... dis 20 %
Hotchkiss'... ℘ doz 5·50—dis 10 %
Common Lever... per doz $2 00—dis 20 %
Leach's... dis 15 %

Scales.
Hatch, Counter... ℘ doz $36—dis 25 %
" Tea... ℘ doz $15—dis 25 %
Union Platform... $6·00, $7·50—dis 40 %
Turnbull's... dis 20 %
Brown's... dis 25&5 %
Fairbanks'... new list dis 15 @ 20 %
Howe's... dis 15&5 %
Chatillon's Grocers'... dis 25 %
" Eureka... dis 20 %
Universal Family... dis 20 %
Scale Beams.
No. 1 800 to 1200 lbs... 90c ℘ cwt; No. 2 " " ... 75c ℘ cwt } dis... 33⅓ %

Scrapers.
Box, 1 Handle... per doz $5·00, dis 10 %
" 2 " ... per doz 6·00, dis 10 %
Foot... dis 60 & 10 %
Ship (common)... per doz $3 00 net
Ship—Providence Tool Co... dis 10 %

Screw Drivers.
Hart, Bliven & Mead... dis 55&10 %
Douglass Mfg. Co... dis 20&10 @ 25&10 %
Disston's... dis 40&10 %

Screws.
Flat Head Iron, List of April 1, 1875... dis 62½ %
Round Head Iron " " " ... dis 50 %
Flat Head Brass... dis 52½ %
Round Head Brass... dis 50 %
Round Head Silver Capped, List March 1... dis 25 %
Hand Rail... dis 55&10 %
Coach or Lag... dis 30&10 @ 40 %
Coach, Patent Gimlet Point, List Jan. 1, 1875... dis 35 %
Bed... list net
Japanned (List of Flat Head Iron)... dis 50&10 %
Machine—Flat Head, Iron, List Jan. 12, 1875... dis 25 %
" " " Brass, " " ... dis 15 %
Round Head, Iron, " " ... dis 20 %
" " Brass, " " ... dis 10 %
English, Flat Head, Iron; American List.
Nettlefold & Chamberlain's... dis 62½&12½ %
Birmingham Sc'w Co... dis 62½&12½ %
Bench—Iron... dis 60, 10&10 %
" —Wood, Beach... ℘ doz $3·00 net
" " Hickory... dis 20&10 %
Hand... dis 25&10 %
Jack—Bell Bottom... dis 15 %

Scythes.
Blood's German Steel, Grass... ℘ doz $10 00; " Cast " " ... ℘ doz 11 00; " Silver " " ... ℘ doz 12 00; " German " Grain ... ℘ doz 14 00; " Cast " " ... ℘ doz 15 00; " Excelsior and Granger. ℘ doz 11 00; " Young America... 10 50; " Silver Clipper... 13 00 } dis $1·50 from list
Scythe Snaths... dis 20 %

Sieves.—Mann's Patent... New list net

	14	16	18	20	24	30 mesh
Iron...	$3·00	3·00	3·25	3·50	3·75	4·75 ℘ doz
Plated.	3·50	3·75	4·00	4·25	4·50	6·00 "

Wood Rims... 18 mesh, $1·50 per doz, dis 10 %

Shears and Scissors.
Cast Steel... dis 75 @ 75&10 %
Cast Iron... New l'st July 15... dis 30 %
Heinisch Sons' Trimmers and Scissors... dis 65 %
" " Standard quality Shears and Trimmers... dis 40 %
Seymour's Straight Trimmers... dis 60&10 %
" Scissors... dis 50 %
Pruning... per doz $10 00—dis 35 %
Barnard's Lamp Trimmers... per doz $8·75

Sheaves.
Sliding Door, M. W. & Co. list... dis 40&2 %
" R. & E. list... dis 50&2 %
" Patent Roller... dis 25 %
" " " Hatfield's... dis 50 %
Russell's Anti-Friction... dis 50 %
Sliding Shutter, R. & E. List... dis 50&2 %

Shovels and Spades.
Ames... dis 20 %
Birmingham Shovel Co... dis 15 %
Rowland's... dis 25 %
Old Colony... new list dis 10&5 %
Middleboro' Shovel Co... new list dis 20 %
C. E. Jennings... New list dis 30&10 %
Dunning's Shovels and Scoops... dis 20&7½ %

Shovels and Tongs.
Iron and Brass Head, R. & E. list... dis 50&10&2 %
" " Hart's... dis 55&10 %
Polished Steel... dis 50&10&2 %

Skates.
Barney & Berry's
N. Y. Club... ℘ pair $2·75; B. & B. Club... " 3·50; All Clamp... " 4·25; Rink... " 8·00 } dis 25 %
Florence Club... per pair $3·50—dis 25 %
" Steel... per doz $9 net
Peck & Snyder's—
American Club, Polished... ℘ pair $5·00
" Blued Top... ℘ pair $3·75 net

Slates.
Square Frames, Round Cornered, by case... dis 40&10 %
Less than a case... dis 70 %

Spoke Shaves.
Iron... dis 33⅓&10 %
Wood... dis 30 %
Bailey's... dis 20&10 %

Spoons.
Tinned Iron... dis 10 %
By the case... dis 20 %
Basting... dis 10 %

Britannia..........................42 s50&5 @ 55 %
" Boardman's, new list..........dis 55 %
Rogers & Bro., A 1..........dis 50 %
Derby Silver Co..........dis 50 & 5 %
Holmes, Booth & Haydens..........dis 50 %
Nickel Silver Co..........dis 40 %
German Silver..........dis 30 @ 33⅓ %
Tin (P. S. & W.)—
Teas..........$1·50 ₩ gross, net
Tables..........2·75 " net

Stocks and Dies..........dis 5&10 %

Stone.
Hindostan Stone..........₩ ℔ 6c } dis 20&10 %
" Axe Stone..........₩ ℔ 8c }
" Slips..........₩ ℔ 10c }
Sand Stone..........₩ ℔ 6c—dis 20&10 %
Washita Stone..........No. 1, ₩ ℔ 22c net
" ....No. 2, ₩ ℔ 17c net
" Slips..........No. 1, ₩ ℔ 45c net
Arkansas Stone..........No. 1, ₩ ℔ $1·25 net
" Slips..........No. 1, ₩ ℔ $2·00 net
Grindstones, Family, J. F. Green & Bro..........dis 20 %

Stove Polish.
Joseph Dixon's..........₩ gross, 6 00
Gem..........₩ gross $4 50
Gold Medal..........₩ gross $6 00 dis 25 %

Squares.
Steel..........dis 50 %; full cases, dis 50&10 %
Iron..........dis 50 %; full cases, dis 50&10 %
Nickel Plated..........add $2 50 @ $4 00 ₩ doz net
Try Squares and T Bevels..........dis 45&10 %
Star Try Squares and Bevels..........dis 30 %
Disston's Try Squares No. 1..........dis 20 %
" " No. 2..........dis 40 %
" " Improved..........dis 20 %

Tacks.
Full Weight American Iron..........dis 45&7½ %
Half Weight American Iron..........dis 72½&7½ %
Carpet..........dis 7½ %
Brads American Half Weight..........dis 50&7½ %
Finishing Nails.......⅜ ⅝ ¾ 1 1¼ in. and over
₩ ℔..........25c 20c 18c 14c 12c dis 7½ %
Trunk and Clout.......⅜ ⅝ ¾ 1 1¼ in. and over
₩ ℔..........25c 20c 18c 14c 12c dis 7½ %
Copper Tacks..........₩ ℔ 50c—dis 7½ %
Iron Shoe Nails, ₩ ℔ 4-8 and longer, 9½c; 3½-8, 10c..........dis 7½ %
Double Pointed..........dis 33⅓&10 %

Tapes, Measuring.
American Flask and Cap Co..........dis 20 %
Eddy's..........dis 20 %

Tea Trays.
American Tea Tray Co..........dis 15 %

Thermometers.
Tin Case..........dis 50&10 %

Toe Calks.
Winsted..........₩ ℔ 15c., dis 10&10 %

Tobacco Cutters.
Enterprise Mfg. Co. (Champion)..........dis 20 %
Wood Bottom..........per doz $12—dis 25&10 %
All Iron..........per doz $19·50—dis 25&10 %

Tinners' Tools and Machines.
P. S. & W..........list net

Traps.
Game, Newhouse..........dis 25 %
" Peck, Stow & Wilcox..........dis 30 %
" Hotchkiss..........dis 30 %
" Blake's Patent..........dis 30 %
Mouse, Wood Choker..........₩ doz holes, 15 @ 16c
" Patent Chocker (Union Nut Co.)..........₩ doz holes 16 @ 18c net
" Round, Wire..........₩ doz $1 50 to 2 00 net
" Square, "..........₩ doz 2 00 to 2 50 net
Cage, "..........₩ doz 2 50, dis 10 %

Trowels.
Lothrop's Brick and Plastering..........dis 10 %
Disston's Brick and Plastering..........dis 12½ %
Rose's Brick..........dis 5 %
Brades' Brick..........gold. dis 10 %
Worrall's Brick and Plastering..........dis 20 %
Garden..........dis 25 %

Triers.
Butter and Cheese..........dis 25 %

Ventilators (Window).
Nickel and Gilt..........per dozen $16·00 @ 18·00

Vises.
Trenton Vises, Solid Box.
40 to 160 lbs..........16c
160 and over..........18c
Peter Wright's..........₩ ℔ 15½c. gold
Wilson's Solid Box..........dis 15 @ 20 %
31 to 160 lbs..........18c
160 and upward..........22c
Wilson's Parallel..........dis 30 %
Sargent's "..........dis 50&10&10 %
Backus & Union, Parallel..........dis 25 %
Buffalo, Parallel..........new list dis 25 %
Fisher & Norris' Double Screw Parallel..........dis 15&10 %
Trenton Parallel..........dis 15 %
Merrill's Parallel..........dis 15 %
Parker's..........dis 20 %
Stephens' Parallel..........dis 15 @ 20 %
Bonney's Saw Filers..........per doz $20—dis 20 %
Stearn's Saw Filers..........per doz $20—dis 20 %

Wheel Barrows.
Canal (Pugsley & Chapman)..........new list dis 12½ %
Coal, Garden and Stone (Pugsley & Chapman)..........dis 25 %

Well Wheels.
Revised list..........dis 60&10 %

Wire.
Brass and Copper..........dis 10 %
Bright and Annealed..........Nos. 0 @ 18 dis 40 @ 45 %
" " .... " 19 @ 26 dis 47½ @ 52½ %
" " .... " 27 @ 36 dis 52½ @ 57½ %
Coppered.......... " 0 @ 18 dis 35 @ 40 %
Galvanized, Nos. 0 to 9..........₩ ℔ 8½ @ 9c net
Galvanized, Nos. 10 to 18..........market list dis 10 @ 15 %
Tinned..........dis 25 @ 30 %
Cast Steel..........dis 15 @ 20 %
Tinned Broom Wire..........dis 30 @ 35 %
Galvanized Telegraph, Nos. 8 and 9..........₩ ℔ 9c @ 9½c
Galvanized Telegraph, Nos. 10 and 11..........₩ ℔ 10c @ 10½c
" " " 12..........₩ ℔ 10½c @ 11c
Annealed Fence, Nos. 8 and 9..........dis 40 @ 45 %
" Grape, " 10 to 14..........dis 40 @ 45 %
Fence Staples..........₩ ℔ 8 @ 8½ %
Stubs' Steel Wire..........$7 00 to 8 gold
Judd's Picture Wire..........dis 50
Clothes Line Wire..........per coil 60c. net

Wrenches.
American Adjustable..........dis 45 %
Baxter's Adjustable "S"..........dis 20 %
" Diagonal..........dis 20 %
Collins & Co.'s..........dis 45 %
Coes' Genuine..........dis 40&5 %
" Pattern (Wrought)..........dis 50&10 %
" " (Malleable)..........dis 60&10 %
Lindsay's Patent..........dis 25 %
Taft's Pattern..........dis 70&10 %
Davis' Patent Duplex..........new list dis 25 %
Bemis & Call's Patent Combination..........dis 20&5 %
" " Merrick's Pattern..........dis 25&2½ %
" " Brigg's Patent..........dis 15&10 %
Aiken's Pocket (Bright)..........per doz $10·00—dis 50 %
" " (Nickel Plated)..........dis 33⅓ %

Wringers. Less than 2 doz / 2 doz lots
Providence..........₩ doz $72·00 / $70·00
Reliance..........₩ doz 69·00 / 67·00
Universal—Extra..........₩ doz 72·00 / 70·00
Novelty..........₩ doz 73·00 / 70·00
Sherman..........₩ doz 72·00 / 70·00
Wringers without Cog Wheel..₩ doz 58·00 / 60·00

TIN WARE AND TRIMMINGS.

STAMPED TIN WARE, dis 5 %.
COMMON STAMPED WARE, &C.

Bucket Covers.

Quarts	½	1	2	3	4
Inch	4½	5 3-16	6 5-16	6¾	7 11-16
Per gross	$2·00	2·60	3·40	4·25	5·75
Quarts		6	8	10	12
Inch		8⅝	9¼	9¾	10 9-16
Per gross		$6·50	8·00	8·50	11·50

Cake Box Covers.

	Small.	Medium.	Large.
Inch	11½	12½	13¼
Per gross	$15·00	18·00	22·00

Pot Covers.

Inch	7⅛	8⅛	8¾	9⅛	9⅞	10⅛
Per gross	$5·75	6·00	6·25	6·75	7·25	8·25
Inch	10⅞	11⅛	11⅞	12⅛	12⅞	13⅛
Per gross	$8·75	9·50	10·00	13·00	13·75	16·50

Pie, Dinner or Scolloped Plates.

Inch	6	7	8	9	10	11
Per gross	$4·00	4·50	5·50	5·50	8·50	10·50

Deep Pie Plates.
Inch..........9 / 10
Per gross..........$8·50 / 10·50

Jelly Cake Pans.
Inch..........9 / 10
Per gross..........$7·50 / 10·00

Coffee Pot Covers.

Plain	1½	2	3	4	5	6 qts.
Inch	3	3⅝	3¾	4⅛	5	
Per gross	$1·15	1·40	1·60	2·00	2·75	3·00
Rimmed	2⅛	3	3½	4	4½ inches.	
Per gross	$2·25	2·50	3·00	3·50	4·00	

T. K. Breasts only.

Inch	7½	8	8½	9	9½	10	10½	11	11½
Per gro.	$6·00	6·50	6·75	7·25	7·75	9·50	10·00	12·00	13·00

Grater Plates.
Sheet..........⅛ / ½ / 1
Per gross..........$3·00 / 6·00 / 11·50

Scolloped Cake Pans.
Small. / Large.
Without Tubes..........per gross, $8·00 / 11·50
With Tubes.......... " 10·50 / 14·00

Stamped Square Pans.
Per gross..........$7·50 / 14·50

Common Square Pans (One Sheet).
Per gross..........$11·50

Milk Skimmers (Plain or Pierced).
Per gross..........$4·00

Lettered Plates
..........5⅛ / 6
Per gross..........$3·25 / 4·00

Steamer Bottoms.
Add $1 per gross, or 10c. per doz. to list of Pot Covers.

Tin Stove Pipe Rings.

Inch	4	4½	5	5½	6	7	
Plain	per gro. $4·00	4·50	5·00	5·50	6·00	7·00	
Jap'd or Burn'd	6·00	6·50	7·00	8·00	8·50	10·00	

Coffee Boiler Lips.
Small. / Large.
To Rivet..........per gross, $0·80 / 1·10
To Solder.......... " 1·25

STAMPED DEEP AND RETINNNED WARE, dis 20 %.

Plain Stamped Water Dippers.
½ pint. Pint. Quart. 2 quarts. 2½ quarts.
Per doz ·90 / 1·15 / 1·50 / 1·85 / 2·50

Retinned Milk Pans.

Qts.	½	1	1½	2	3	4	5	6	8	10	12
Per doz.	1·20	1·50	1·75	2·00	2·25	3·15	3·50	3·85	4·75	5·25	5·75

Dipper Bowls, Plain Stamped—
Pints....½ 1 Quarts.... 1 2 2½
Per doz. ·50 ·75 Per doz... 1·00 1·25 1·75
Dipper Bowls, Retinned—
Pints....½ ¾ Quarts.... 1 2 2½
Per doz. [illegible] Per doz.. 1·40 1·75 2·25

Pans.
Dish Pans, Retinned Deep—

Quarts	7	8	10	14	17	21	30
Per doz.	8·50	9·50	11·00	13·00	16·00	19·00	30·00

JAPANNED TIN WARE, dis 5 %.
Canisters, Common.....Pound ½ 1 2 3
Per gross $10·50 15·00 24·00 30·00
Canisters, Hinged.....Pound 1 1½ 2 3 4
Per gross $19·00 25·00 32·00 37·00 42·00
Canisters, Square.....Pound 2 4 6 8 12 16
Per doz $3·00 4·25 5·00 5·75 8·00 9·10
Candlesticks, Japanned..........No. 1 2
Per gross $8·00 7·00
Cake Boxes, Round..........per nest, $2·25
Square..........per nest, 4·25
Chamber Pails, Japanned
Nos..........2 3 4 5
Green, per doz..........$8·00 9·00 11·00 13·00
Oak "..........$9·00 11·00 12·00 13·50
Dust Pans, Corrugated..........per gross, $22·00
Box Graters..........per gross, $3·75
Molasses Cups.......Pint ½ 1 2 4
Per gross $13·00 16·00 28·00 42·00
Lunch Boxes, per doz..........7 in $2·00; 8 in. $2 50
Pepper Boxes Japanned..₩ gross small, $3·00; large, $4·00
Toy Banks, House..........No. 1 2
Per gross $7·00 5·50
Toy Banks, Gothic.......No. 1, $6·00, No. 2, 4·00 per gross
Toy Cups, Straight..........No. 1 2 3
Per gross $3·75 3·25 2·75
Toy Cups, Flaring..........No. 1, $4·25; 2, $3·75 ₩ gross
Toy Pails, Covered..........No. 1, per gross $4·00
Toy Rattles..........per gross, $2·00
Trunks, Wire Handled..........per nest (5) $1·75
Spittoons, Tin..........per gross, $27

PLANISHED TIN WARE, dis 20 %.
Planished Coffee Pots, Round.
Each.... ·60 ·75 ·85 ·95 1·15 1·25 1·30 1·40
Pints.... 1 2 3 4 5 7 8
Planished Tea Pots, Round.
Each.......... ·70 ·80 ·95 1·05 1·25
Pints.......... 2 3 4 5 6
Planished Tea Pots, Oval.
Each.......... ·70 ·80 ·90 1·05 1·15 1·40 1·75
Pints.......... 1 2 3 4 5 6 8
Planished Pepper Boxes, No. 1..........per doz., $1·52
Planished Flour Dredges, No. 3, $2·10; 4, 2·45 ₩ dozen.
Planished Round Coffee Biggins.
Pints....... 2 3 4 5 6 8
Each.......$1·00 1·10 1·20 1·40 1·60 2·00
Planished Oval Coffee Biggins.
Pints....... 2 3 4 5 6 8
Each.......$1·15 1·25 1·40 1·60 1·80 2·25
Planished Oval Chafing Dishes, Imperial Covers.
Inch.......... 10 12 14 16 18 20 22 24
Each..........$3·85 5·00 6·25 7·60 9·00 11·50 15·00 16·50
Planished Oval Chafing Dishes, Low Covers.
Inch.......... 10 12 14 16 18 20
Each..........$3·25 4·35 5·30 6·20 7·30 9·25
Planished Low Dish Covers.
Inch..... 10 11 12 14 16 18 20
Each.....$ ·70 ·80 1·00 1·25 1·50 2·00 2·75
Planished Imperial Dish Covers.
Inch..... 10 11 12 14 16 18 20 22 24
Each.....$1·55 1·70 2·00 2·60 3·15 3·45 4·00 5·45 6·30
Planished Etnas, on Stands.
Pints.......... 1½ 3 4 5
Each..........$0·90 1·00 1·20 1·50 1·75
Planished Liquor Mixers..........Nos. 0 1 2
Per doz $2·00 2·10 2·45
Planished Oval Melon Molds.
Nos.......... 2 3 4 5 6 7 8 9
Each..........$·60 ·65 ·70 ·80 ·90 1·00 1·15 1·35
Planished Oval Tumbler Warmers.
To fit 1, 2, 5, and 4 O. G. Urns..........each, $2·50
Planished Oval O. G. Urns.
Nos..... 0 1 2 4 5 6 7 8
Each....$4·90 5·45 6·30 7·00 7·75 9·25 11·25 12·50 15·50
Planished Round Urns.
Nos.......... 0 1 2 3 4 5 6 7
Each..........$4·20 4·85 5·45 6·30 7·75 9·00 11·00 14·25
Planished Round Oyster Dishes, (Complete)..Nos. 1 2
Each $2·10 2·80
Planished Oyster Dish Plates..........Nos. 1 2
Each $0·25 0·30
Oyster Dish Covers..........Nos. 1 2
Each $0·30 0·35

Tea Pot Handles—P. S. & W..........dis 20 %
Stow's Patent Hollow Tea Pot Handles.
No. 1, Small 4⅛ inches..........per gross, $11·50
No. 2, Medium, 5⅛ "..........12·50
No. 3, Large, 6⅛ "..........13·50
No. 4, Ex. Large 7⅛ in., for Wash Pitchers &c..........18·00
Solid Iron, Tin Tipped.
No. 10, Small, 4⅛ inches..........per gross, $9·00
No. 15, Medium, 5⅛ "..........9·50
No. 20, Large, 6⅛ "..........10·75
Stow's Patent Hollow Tea Pot Handles, Adamantine Bronze—P. S. & W.
No. 12, Bronzed and Tin-Tipped..........per gross, $13·50
Saucepan Handles, Of Best Malleable Iron.
P. S. & W..........dis 20 %
Japanned.
No. 1, 5⅛ inches long..........per gross, $3·50
No. 2, 6 "..........3·75
No. 3, 6⅛ "..........4·00
No. 4, 7⅛ "..........4·25
No. 5, 8 "..........4·50
No. 6, 9 "..........4·75
Tinned.
No. 1, 5⅛ inches long..........per gross, $4·25
No. 2, 6 "..........4·50
No. 3, 6⅛ "..........4·75
No. 4, 7⅛ "..........5·25
No. 5, 8 "..........5·50
No. 6, 9 "..........5·75
Japanned..........per lb., ·16
Tinned.......... " ·20
Iron Kettle Ears (P., S. & W.)..........dis 45 %
Half gross pairs in a package.
Tinned.
Nos.......... 1 2 3 4 5 6 7
Per gross pairs..88c $1·00 1·50 1·75 2·10 2·75 3·75 4·50
Black.
Nos.......... 1 2 3 4 5 6 7 8
Per gross pairs...75c 88c $1·35 1·50 1·75 2·25 2·75 4·00
Tinned Tea Kettle Ears.
Nos.......... 4 5 6
Per gross pairs..........$1·75 2·10 2·75
Extra Heavy Tinned Kettle Ears—French Pattern.
Nos.......... 1 2 3 4 5 6 7
Per gross pairs.......$1·00 1·25 1·50 1·75 2·00 2·50 3·00
Malleable Iron Kettle Ears for Coal Hods &c.
P., S. & W..........dis 20 %
No. 10 Small..........₩ ℔, Tinned 20c; Black, 16c
No. 20 Medium..........₩ ℔, " 20c; " 16c
No. 30 Large..........₩ ℔, " 20c; " 16c
No. 40 Extra Large..........₩ ℔, " 20c; " 16c
In cases of 100 lbs. each.
Milk Can or Boiler Handles—(P. S. & W.) 4⅛ in..dis 25 %
Plain, 8c.; Japn'd, 9c.; Tinned, 15c. per lb.; Malleable Clips or Ears to match, Tinned..........20c per lb.
Toilet Ware Handles—4⅛ inches (P. S. & W.).....dis 35 %
Plain with drilled holes, per lb..........9c
Plain with Cast "..........8c
Plumbers' Scrapers—(P. S. & W)..........dis 25 %
Extra quality, length 6 in., per doz..........$4·00

METALS.

IRON.—DUTY Bars, 1 to 1½ cents per lb., Sheet, Band, Hoop and Scroll, 1½ to 1¾ cents per lb. Provided, that none of the above Iron shall pay a less rate of duty than 35 per cent. Pig, $7 per ton; Polished Sheets, 3 cents per lb.; Wrought Scrap, $8 per ton; Cast Scrap, $6 per ton. Railroad, 70 cents per 100 lbs. Boiler and Plate, 1½ cents per lb.

Pig Iron—AMERICAN.
Foundry No. 1..........₩ ton, $26 00 @ 27 00
Foundry No. 2.......... " 24 00 @ 25 00
Gray Forge.......... " 22 00 @ 24 00
White and Mottled.......... " 21 00 @ 22 00
SCOTCH.
Coltness..........Nominal " 31 00 @ 32 00
Glengarnock.......... "
Gartsherrie.......... "
Eglinton..........Nominal " 29 00 @ 30 00

Bar Iron.
Am. Refined, at mill..........2·6c. @ 2·8c

Rails.
Welsh, gold..........₩ ton, 48 00 @ 50 00
American, at works, currency.......... " 47 00 @ 50 00
Old Rails..........26 00 @ 26 50

Scrap.
Wrought Scrap.......... " 31 00 @ 32 00

Bar Iron from Store.
Common Iron.
⅜ to 2 in. round and square.... } ₩ ton $57 50
1 to 6 in. x ⅜ to 1 in.......... }
Refined Iron.
⅜ to 2 in round and square.... } " 60 00
1 to 6 in. x ⅜ to 1 in.......... }
1 to 6 in. x ¼ and 5-16.......... " 65 00
Shafting Iron—2⅛ to 4 in.......... " 67 50 @ 77 50
Rods—3-16 to ⅜ round and square.. " 62 50
Bands.......... " 75 00
Hoops—⅛ to 2 in.......... " 82 50 @ 132 50
Swedish Iron.
Ordinary sizes.......... " 132 50 @ 135 00
Plow size.......... "

Sheet Iron.

	Common American and English.	R. G. American.	R. G. English.
Nos 10 to 20 ₩ ℔	4c	5c	5½c
21 to 24	4⅛c	5⅛c	5⅝c
25 to 26	4⅛c	5⅛c	5¾c
27	4⅞c	5⅞c	6c
28	5c	5c	6⅛c

Galvanized, 14 to 20, prime, ₩ ℔ 9c; 2d quality..₩ ℔ 8c
" 21 to 24 " " 9½c " ... " 8½c
" 25 to 26 " " 10c " ... " 9c
" 27 " " 11c " ... " 10c
" 28 " " 12c " ... " 11c
Patent Polished..........₩ ℔ 14c
Russia, Nos. 8 to 16.......... " 16c
" Stained, No. 1.......... " 15c
Belgian.......... " 10c
One piece Corrugated Sheet Iron Elbows.
CHARCOAL IRON.
⅜ 5 5½ 6 7 inch.
$2·50 3·50 4·50 5·25 6·50 per doz.
RUSSIA IRON.
4½ 5 5½ 6 7 inch.
$5·00 7·00 9·50 12·00 14·00 per doz.

COPPER—DUTY. Pig, Bar and Ingot, 5c.; old copper, 4 cents ₩ ℔; Manufactured (including all articles of which copper is a component of chief value) 45 % ad valorem.
American Ingot..........₩ ℔ 23½ @ 23½c
English

SHEATHING, BRAZIERS COPPER, BOLTS, &C.
Braziers Copper, ordinary sizes, over 16 oz., per square foot..........31c. ₩ ℔
Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., per square foot..........33c. "
Braziers' Copper, 12 oz. per square foot..........35c. "
Circles less than 84 inch in diameter..........34c ₩ ℔
Circles, 84 inch diameter and over..........37c. "
Segment and Pattern Sheets..........34c. "
Locomotive Fire Box Sheets..........31c. ₩ ℔
Sheathing Copper, over 12 oz. per sq. ft..........30c. "
" " 12 oz. ₩ sq. ft. and lighter...35c. "
Bolt Copper..........31c. "
Copper Bottoms, 38c. ₩ ℔..........net
No Copper in Sheathing except 14x48 inches, and not to exceed 34 oz. to the square foot.

O'NEILL'S PATENT PLANISHED COPPER.
14x48.
14 and 16 oz. and heavier.......37c. By the case, 36c. ₩ ℔
12 oz. and lighter..........40c. " " 39c. "
Boiler Sizes.
7 in., 14x52. 8 in., 14x56. 9 in., 14x60
14 and 16 oz. and heavier.......39c. By the case, 33c. ₩ ℔
(And all sizes not over 30 inches wide.)
30x60
14 and 16 oz. and heavier..........41c. ₩ ℔
12 oz..........44c. "

TINNING.
14x48, by the case..........8c. ₩ sheet
14x48, less than case..........10c. "
Other sizes not larger than 30x60..........2½c. ₩ sq.
Larger than 30x60..........5c. "

Brass.
ROLLED AND IN SHEETS.
For the purchase of 100 pounds and over at one time
HIGH BRASS.
All Nos. to No. 8, and widths 14 in. and under.....30c
All Nos. to No. 8, inclusive, and widths over 14 to 0 in. inclusive..........33c
Over 0 in. to 30 in. inclusive..........36c
½c ₩ ℔ advance on each No. above No. 28 to 38, inclusive.
All Brass thinner than No. 38 is Platers' Brass at......49c
Sheets 4x48 in., and all sheets cut to particular sizes and lengths..........36c
Printers' Rules..........40c
Sheets wider than 30 in. and under 40 in..........40c
" 40 in. and over..........42c
Circular sheets, in diam. from 4 in. to 14 inclusive....40c
" " " over 14 in. to 0 " ...43c
" " " " 0 in. to 30 " ...46c
" " " " 30 in. to 40 " ...49c
" " " " 40 in..........52c

LOW BRASS.
1c ₩ ℔ more than High Brass.
Gilding Metals, 7c ₩ ℔ more than High Brass.
Platers' or Gold Metal { In Bars..........42c
{ Sawed..........45c
FOR SLITTING: Metal in Width.
In. to ¼ in., to No. 30, inclusive, 1c ₩ ℔ advance.
In. to 1 in., thinner than No. 30, c ₩ ℔ advance.
In. to ⅛ in., " " 30, 3c " "
⅛ in. and less to No. 30, c ₩ ℔ advance.
⅛ in. and less thinner than No. 30, 5c ₩ ℔ advance.

BRASS AND COPPER WIRE
(Stub's Wire Gauge).

	High Brass.	Low Brass.	Gild'g and Cop'r
Nos. 0 to 20	33	37	43
Nos. 21, 22, 23	34	38	44
Nos. 24 and 25	35	39	45

Brass Rods, No. 8 and larger, 39c ₩ ℔, less 10 per cent. Wire straightened and cut, smaller than No. 8, special rates, not less than 6c ₩ ℔ advance.

FINE WIRE—NET PRICES.

	High Brass.	Low Brass.	Gild'g and Cop'r
No. 6	0·41	0·45	0·51
No. 7	0·44	0·48	0·54
No. 8	0·46	0·50	0·56
No. 9	0·48	0·52	0·58
No. 30	0·50	0·54	0·62
No. 31	0·52	0·56	0·66
No. 32	0·56	0·60	0·71
No. 33	0·60	0·64	0·81
No. 34	0·64	0·68	0·91
No. 35	0·69	0·73	1·08
No. 36	0·78	0·82	1·15
No. 37	0·98	0·98	1·28
No. 38	1·28	1·28	1·58

Ten cents per pound extra for Spooling.

MISCELLANEOUS.
Common Plain Brass Pail Ears..........39c net
Hose Pipes, 500 and over..........79c net
" under 500..........84c net
Door Rail..........44c—dis 10 %

TUBING
(Brown & Sharpe's Gauge.)
₩ ℔
Plain to No. 20, inclusive..........$0·48
Nos. 21, 22, 23, 2c. advance on List for each No.
Nos. 24, 25, 26, 4c. " " "
Above No. 26 special rates.
Plain Tube, 1-4 inch..........64
" 3-16 "..........1 49
" 1-8 "..........1 74
All Mandrel-Drawn Tubes 5c. advance on List.
Fancy Tubing 4c. advance on List above Plain.
English, Scotch, and Extra Patterns Fancy Tubing to No. 20..........57
Tubing sawed or cut 2 to 4 ft. long, 2c. advance on List.
Add to two cents a half-cent for each additional cutting under two feet.
Discount on the foregoing list, 10 per cent.

LEAD—DUTY: Pig $2 per 100 lbs.; old Lead, 1½ cent per lb.; Pipe and Sheet, 2½ cents per lb.
Spanish..........7c gold
German Refined..........6½c gold
English..........6½ @ 7c gold
American..........6 @ 6½c gold
Bar..........dis 10 %..........8½c.
Pipe..........dis 10 %..........9½c.
Tin Lined Pipe..........dis 10 %..........16½c.
Sheet..........dis 10 %..........9½c.
Shot..........dis 10 %.Drop, 9½c. Buck, 10½c.

BABBITT METAL.
N. P. U..........₩ ℔ 8½ @ 9c
A., 25c.; B, 20c.; C, 15c.; D, 12c. ₩ ℔.
SOLDER..........No. 1, 14c.; No. 2, 13 @ 12½c

STEEL—DUTY: Bars, Ingots, Sheets and Coils, valued at 7 cents perlb., or under, 2¼ cents; over 7 cents, and not above 11, 3 cents per lb. over 11, 3¼ cents per lb. and 10 % ad val. Railway Bars 1¼ cents per lb. Railway Bars, in part Steel, 1 cent per lb. Provided, that Metal cemented, cast or made from Iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as

American Cast Steel.
Tool..........15 @ 16c
Spring..........10c
Homogeneous..........12½c
Tire..........12½ @ 13½c
Machinery (round and square)..........10 @ 11c
File..........11c
Sheet..........14 @ 16c
Saw Plate, mill and mulay..........14 @ 16½c
Saw Plate, gang and X cut..........13 @ 14c
" circular as to size..........18 @ 30c

Chrome Steel.
Tool..........₩ ℔ 20 @ 21c
Tool, extra fine.......... " 40 @ 75c
Spring..........₩ ℔ 12c and upward
Machinery..........₩ ℔ 14c
Hammer.......... " 15c
Gun or Homogeneous.......... " 16c

English Steel.—payable in gold, net.
" Best Cast..........₩ ℔ 17½c
" Extra Cast.......... " 18½c
" Round Machinery, Cast.......₩ ℔ 10½ @ 11½c
" Swaged, Cast.......... " 19½c
" Best Double Shear.......... " 17½c
" Blister, 1st quality.......... " 14½c
" " 2d quality.......... " 13 c
German Steel, Best.......... " 11½c
do 2d quality.......... " 10½c
3d quality.......... " 9½c
Sheet Cast Steel, 1st quality.......... " 17½c
" " 2d quality.......... " 14½c
" " 3d quality.......... " 12½c
File Steel, Flat and ½ Round.......... " 12½c
" Square and Round.......... " 12½c
" Mill.......... " 13½c
Taper to 4 inch.......... " 16c
" Taper 3 and 3½ inch.......... " 18c

SPELTER—DUTY: In Pigs, Bars and Plates, $1 50 per 100 lbs.
Silesian, cash..........6½ @ 7c., gold
American "..........7½ @ 11c., currency

TIN—DUTY: Plates, Sheets, Tagger and Terne, 1·1c per lb.; Electro-galvanized Plates, 2 cents per ℔; Manufactures of, not enumerated, 35 per cent. ad val. Bars, Block and Pigs, free. Banca, subject to duty of 10 per cent.
Banca..........₩ ℔ 23½ @ 24c., gold
Straits..........₩ ℔ 19 @ 20c., gold
English..........₩ ℔ 19 @ 20c., gold

CHARCOAL TIN PLATE.
I C 10x14, Prime Charcoal..........9·50
12x12, "..........10·00
14x20, "..........10·25
I X 10x14, "..........11·75
12x12, "..........12·25
14x20, "..........12·75
D C 12½x17 "..........9·00
D X 12½x17 "..........11·25
For each additional X add..........2·25

COKE TIN PLATE.

	Best.	2d Quality.	Ordinary.
I C 10x14	$ 9·00	8·50	7·75 @ 8·25
I C 12x12	9·50	8·75	
I C 14x20	9·50	8·75	7·75 @ 8·00

TERNE PLATE.

	Prime Char.	2d Qual.	Coke.
I C 14x20	$ 8·50	8·00 @ 8·50	7·75 @ 8·00
I X 14x20	11·00		
I C 20x28	18·00	16·25 @ 17·50	16·25 @ 16·50
I X 20x28	23·00		
I C 20x28	23·00		

ZINC.—DUTY: Pig or Block, $1 50 per 100 lbs. Sheet 2½c. ₩ ℔.
Sheet..........cask 10½c
"..........open 10½c

Old Metals.

(Dealers' Selling Price.)
Copper..........@ 20
Yellow metal..........14 @ 15
Brass..........13 @ 14
Heavy Composition..........17 @ 18
Old lead, solid..........6 @ 6¼
Tea lead..........5
Wrought iron..........1½ @
Sheet iron..........0¾ @ 0⅞
Cast iron..........¾
Machinery iron..........1½ @ 1
Zinc..........5 @ 5¼
Pewter, No. 1..........17
" No. 2..........10 @ 12
Spelter..........5 @

Paints, Oils, etc.

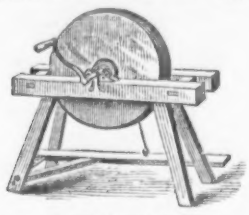
Paints.
Black, lamp—Coach Painters..........₩ ℔ 20c
" " Ordinary..........6
" Ivory Drop, fair..........15
" " best..........2[illegible]
Black Paint, in oil..........kegs, 8c.; ass't'd cans, 11
Blue, Prussian, fair to best..........50 @ 75c
" " " " in oil..........35 @ 65c
" Chinese, dry..........83c
" Ultamarine..........25 @ 80
Brown, Spanish..........1¼
" Van Dyke..........8
Carmine, 40..........$12 00
Green, Chrome..........15 @ 23c
" " in oil..........18 @ 25c
" Paris..........good, 30c; best, 40c
" " in oil.......... " 30c " 45c
Mineral Paints..........1¼ @ 4c
Orange Mineral..........11c
Red Lead, American..........9½c
" " English..........10½c
" Venetian (N. C.) dry..........2½c
" " in oil..........ass't'd cans, 11c; kegs, 8½c
" Indian, dry..........10c
Rose Pink..........1½c
Sienna American, Raw..........4c
" Burnt..........4½c
" " in oil..........16 @ 25c
" Raw " ....15 @ 25c
Umber, Burnt..........4 @ 8c
" " in oil..........16 @ 21c
" Raw..........3½ @ 7½c
" " in oil..........16 @ 22c
Vermillion, Chinese
" English..........1 10, gold
" Trieste..........1 10 "
" American, Common..........23c
White Lead, American, pure dry..........10c
" " in oil..........11c
White, Paris, English, prime..........in bbls. 2⅛ @ 2½c
Yellow Ochre, French..........2⅛ @ 2½c
" " " in oil....ass't'd cans, 11c; kegs, 8½c
" " Vermont..........in casks 1½c
" Chrome..........17 @ 25c
" " in oil..........18 @ 28c
Zinc White, American No. 1 dry..........9c
" " 1, in oil..........11c
" French (Paris)..........11c
" " in oil..........12c

Oils.
Linseed Raw..........₩ gal. casks, 70c. bbl., 71c
" Boiled.......... " 75c. " 76
Whale, Crude.......... "
" Bleached Winter.......... " 75c
Sperm, Crude..........bbl. 1·65
" Winter, unbleached.......... " 1·90
" " Bleached.......... " 2·00
Seal, Extra Refined.......... "
Lard, Pure Winter.......... " 1·30
" Spring.......... " 1·20
Cotton Seed, Crude.......... " 60c
" Southern Yellow.......... " 65c
" White.......... "
Neatsfoot, Winter..........70c @ $1·10
Natural Lubricating..........38c @ 40c

Sundries.
Asphaltum..........5c
Benzine..........₩ gal. 16c
Chalk..........1½c
" Block..........
Dryer, Patent, Am'n..........ass't cans [illegible] kegs, 9c
" " English.......... " [illegible] " 9c
Flocks..........
Frostings..........50c
Glue, White..........[illegible] @ 47c
" Sheet..........20c
Glaziers' Points, Zinc..........9c
Gum, Copal..........36c
" Damar..........25c
" Shellac, English..........75c
" " dark..........65c
Litharge..........10c
Pumice Stone, selected Lumps..........4 @ 6c
" powdered..........4c
Putty in bladders..........3½c
" in bulk..........3c
Rotton Stone, soft, English..........8c
Spirits Turpentine..........32c
Whiting, Spanish..........¾c

Grindstones, Emery, &c.

Walter R. Wood,
GRINDSTONES.



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DROP PRESSES

Bennett Hotchkiss and N. C. Stiles' Patent.

This Drop (which has been illustrated in this journal as of that class in which the Hammer is raised by a stiff belt or board passing up between two friction rolls, and is so well known that we will only describe our improvements. The patents we are working under are those of BENNETT HOTCHKISS (who in an interference case with Goulding and Cheney was declared the first inventor) and N. C. STILES. Our improvements consist:

First.—Of an arrangement of parts that makes it the most complete Jobbing Hammer, and will take the place to a great extent, of all other kinds for forging. In addition to the upright rod, which is operated by the hammer to open and close the rolls, we place another rod the lower end of which is secured to the end of a lever which is operated by the hand or foot, which operation also opens and closes the rolls at will. The lower end of this rod has a slot, so that the action of the hammer will not disturb the hand lever, thereby preventing the hand being injured, as otherwise would be the case.

Second.—No dog is used on the upright to hold up the hammer. The belt or board passes up between two clamps situated under the rolls, so arranged that as the hammer descends they will freely open of themselves, but on its ascending they will close and hold up the hammer. To let the hammer fall the clamps are opened by pressure upon the foot treadle.

Third.—The board or belt is secured to the hammer by an elastic connection, which prevents the sudden jar and destruction of the same. The back roll is made adjustable to different thicknesses of board or belt, as also are the clamps. An adjustable collar on the upright rod allows the operator to obtain *any hight* of blow desired automatically. If one blow is wanted, press upon the treadle and remove the pressure as soon as the blow is given. Keep the foot upon the treadle and the blows will be repeated until the pressure is removed. If a blow of less hight than the collar is set for is required work the hand lever, which will give you any hight of blow desired. The hammer can be held up at any point below the collar by bringing the hand lever into action when the hammer is at the desired hight, so that the next blow can be given from a state of rest, of less hight than the collar is set for. This is a feature no other drop has; that is, the first blow struck can be of less hight than the second or third, and obtained from a state of rest. A gentle pressure upon the treadle will allow the hammer to go down slowly, but it will stop and remain suspended at any point as soon as the pressure is removed.

The clamps in holding up the hammer keep the boar from touching either r[illegible] and prevents the same fr[illegible] being worn uneven.

Manufactured only by the
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Manufactured by
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Registered March 31, 1874.

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We would also call attention to the *fact*, that in 1869 we made several *important* improvements (secured by patents), on the old wrench previously manufactured by L. & A. G. Coes which were *at once closely* imitated and sold as the *Genuine* Wrench by certain parties who seem to rely upon *our* improvements to keep up their reputation as manufacturers, and although the fact of their imitating our goods may be *good* evidence that we manufacture a superior Wrench, we wish the trade *may not be deceived* on the question of *originality*. Trusting the trade will fully appreciate our *recent* efforts, both in improvements on the Wrench and in the adoption of a Trade Mark, we would caution them against imitations. None genuine unless stamped

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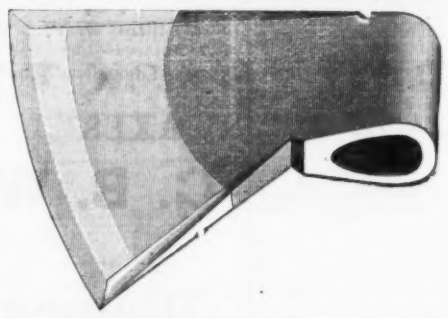

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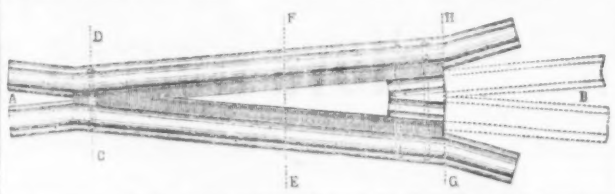

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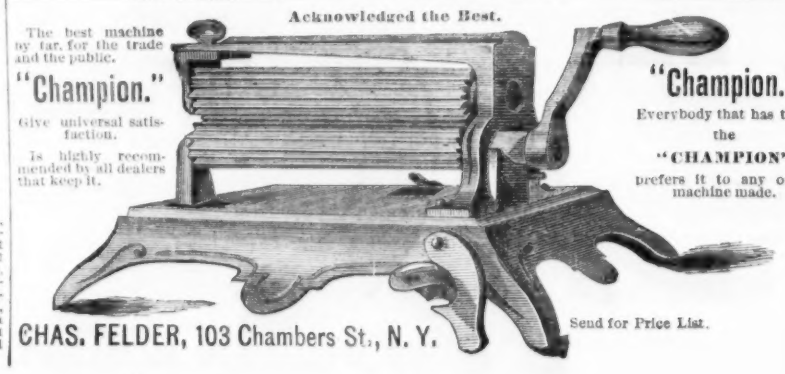

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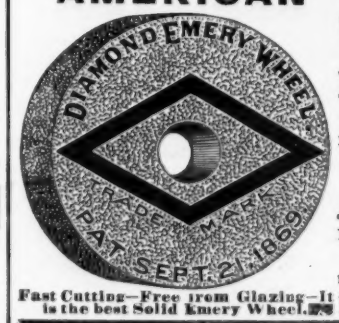

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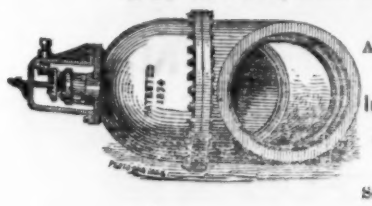

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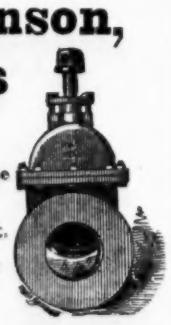

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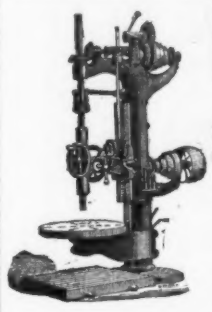

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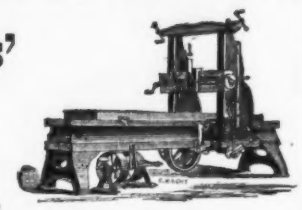

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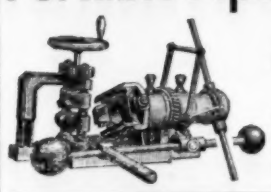

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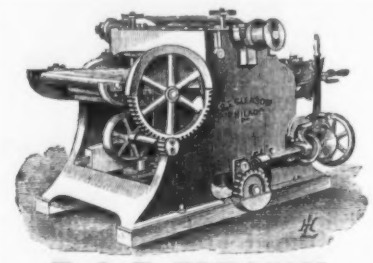

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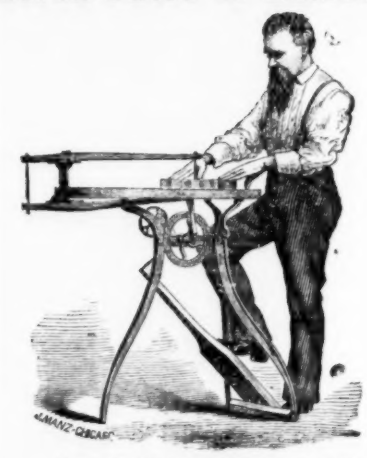

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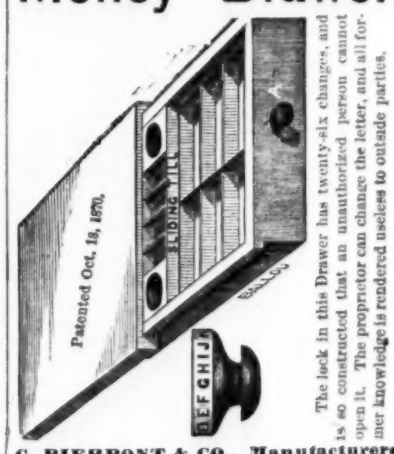

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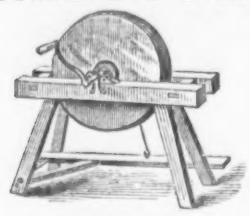

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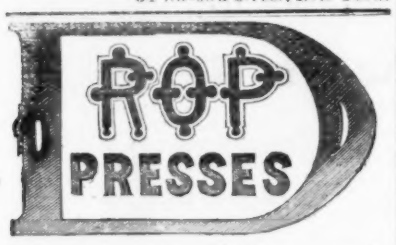

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Second.—No dog is used on the upright to hold up the hammer. The belt or board passes up between two clamps situated under the rolls, so arranged that as the hammer descends they will freely open of themselves, but on its ascending they will close and hold up the hammer To let the hammer fall the clamps are opened by pressure upon the foot treadle.

Third.—The board or belt is secured to the hammer by an elastic connection, which prevents the sudden jar and destruction of the same. The back roll is made adjustable to different thicknesses of board or belt, as also are the clamps. An adjustable collar on the upright rod allows the operator to obtain *any hight* of blow desired automatically. If one blow is wanted, press upon the treadle and remove the pressure as soon as the blow is given. Keep the foot upon the treadle and the blows will be repeated until the pressure is removed. If a blow of less hight than the collar is set for is required work the hand lever, which will give you any hight of blow desired. The hammer can be held up at any point below the collar by bringing the hand lever into action when the hammer is at the desired hight, so that the next blow can be given from a state of rest, of less hight than the collar is set for. This is a feature to other drops has; that is, the first blow struck can be of less hight than the second or third, and obtained from a state of rest. A gentle pressure upon the treadle will allow the hammer to go down slowly, but it will stop and remain suspended at any point as soon as the pressure is removed.

The clamps in holding up the hammer keep the bolt from touching either r and prevents the same from being worn uneven.

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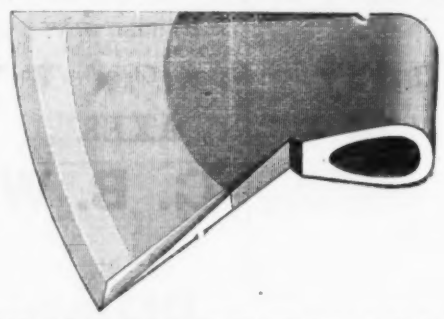

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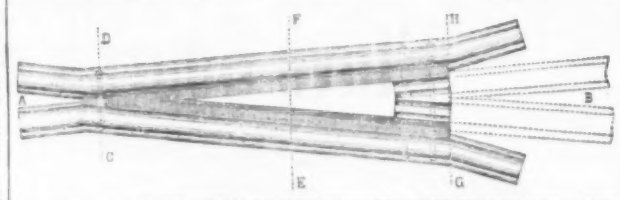

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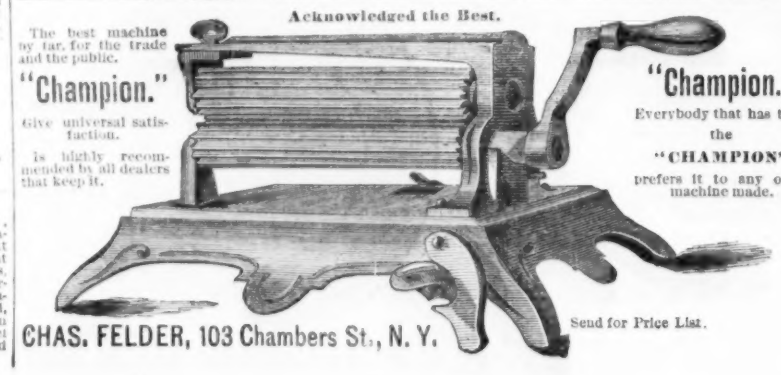

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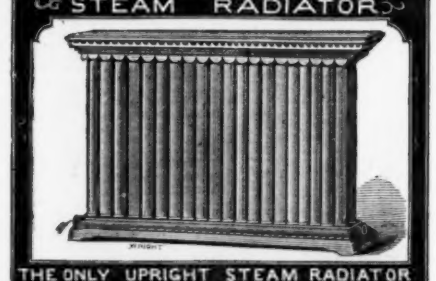

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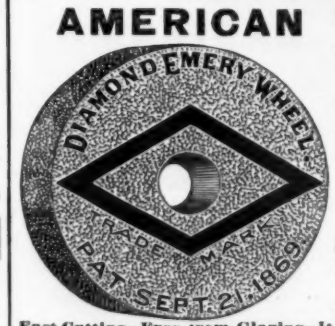

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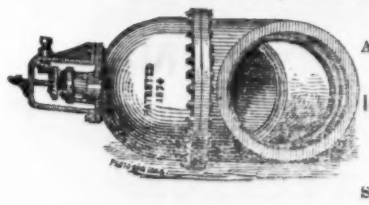

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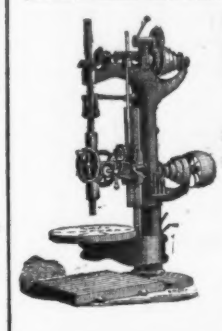

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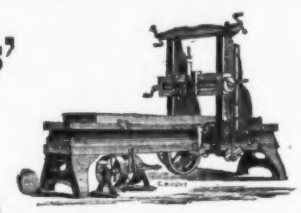

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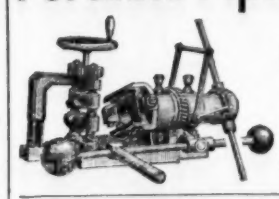

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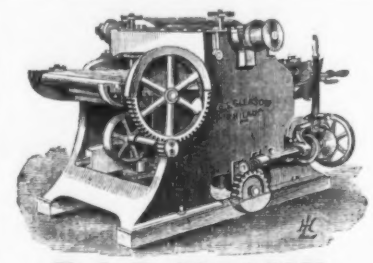

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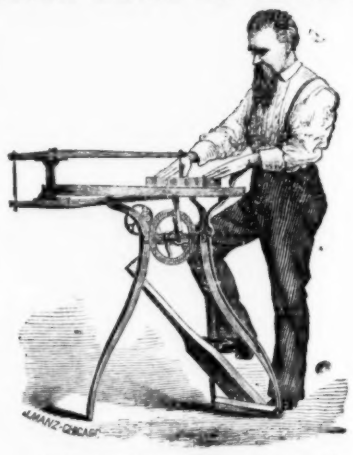

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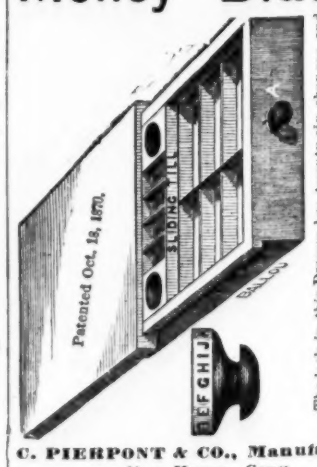

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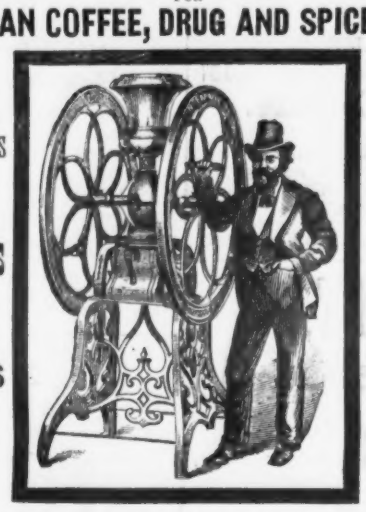

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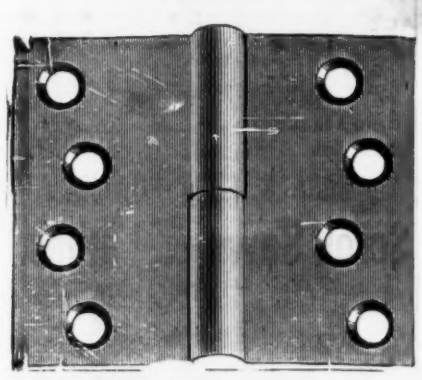

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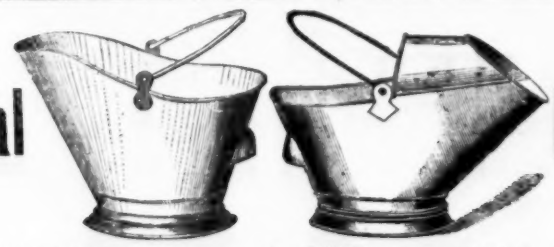

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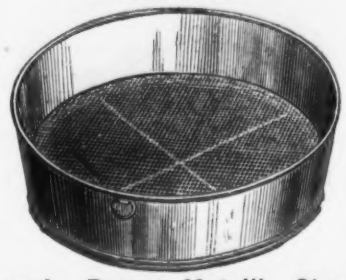

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Swedes and Common Iron Tacks; Leathered, Carpet Brush, Lace and Gimp Tacks; Finishing, Hungarian, 2d, 3d and 5d Fine, Trunk, Clout, and Cigar Box Nails; Black and Tinned Trunk Nails; Zinc, Iron, Copper and Steel Shoe Nails; Brads and Patent Brads; Glaziers' Points &c., &c., &c., COPPER, BRASS AND IRON RIVETS, of all kinds. Coopers' Rivets, from 1d to 6d, in casks of 100 lbs. each. Hose, Belt and Shoe Rivets and Burs. Oval and Countersunk Heads of extra lengths, made to order. SHIP AND BOILER RIVETS OF ALL SIZES AND LENGTHS

COBB & DREW,

Plymouth, Mass.

Manufacturers of Copper, Brass, and Iron Rivets · Common and Swedes Iron, Leathered, Carpet, Lace and Gimp Tacks; Finishing, Hungarian, Trunk Clout and Cigar Box Nails, &c. Rivets made to Order

NEW YORK AGENCY

Grundy & Kenworthy

HARDWARE.

165 Greenwich Street.

Agent for the Philadelphia Star Carriage and Tire Bolts

FLUTING MACHINES.

The Celebrated K. F. M.

Manufactured for the Trade by

HENRY SOMMER,

8 to 12 Pearl Street, NEWARK, N. J.

Established in 1836.

Shelton Company,

Manufacturers of every variety of

TACKS & SMALL NAILS,

Carriage, Machine, Plow, Stove and Tire Bolts, Coach Screws, Bed Screws, &c.

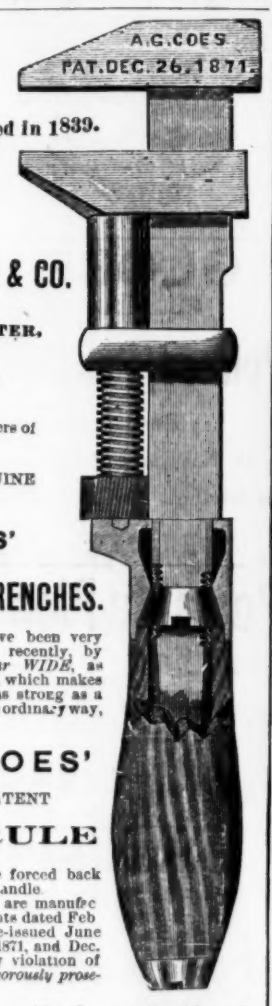
BIRMINGHAM, CONN

Buy the COVERT SNAP

And you will buy no other. It is the most convenient, durable, safe and reliable Snap ever used. It has a brass coil spring that is four times as long as any other coil spring snap, and is enclosed in the barrel back of the bolt, making a snap which works freely under all circumstances, and without danger of having its parts broken or disarranged. We manufacture all sizes of Harness Snaps and Round Eye Snaps, and Covert's Patent Thimble to go on rope for Cattle and Horse Ties. Also other goods.

Send for price list and circulars.

HOLD BACK & SNAP CO., Troy, N.Y.



Established in 1839.

A. G. COES & CO.

WORCESTER,

Mass.,

Manufacturers of

THE GENUINE

COES'

SCREW WRENCHES.

Our goods have been very much improved recently, by making the *Bar WIDE*, as shown in the cut, which makes a ½ in. Wrench as strong as a ⅝ in. made in the ordinary way, and by using

A. G. COES'

NEW PATENT

FERRULE

Which cannot be forced back into the Handle.

☞ Our goods are manufactured under Patents dated February 7, 1860, (re-issued June 29, 1871), May 2, 1871, and Dec. 26, 1871, and any violation of either will be *vigorously prosecuted.*

We call particular attention to our new Patent Ferrule, with its Supporting Nut (shown in section in the above cut), which makes the strongest Ferrule fastening known.

A. G. COES & CO.

THE

Hart, Bliven & Mead MFG. CO.,

18 & 20 Cliff and 243 & 245 Pearl Streets, New York.

Factories at KENSINGTON, CONN.

Manufacturers of

THE COMBINED NAIL DRAWER AND BOX OPENER.

The Best and Cheapest Patent Nail Puller made

Our Catalogue and Appendix's now ready. Price $1.50, and charge remitted on receipt of subsequent orders.

SEND FOR CIRCULAR.

QUACKENBUSH, TOWNSEND & CO.,

Hardware, Cutlery, &c.

59 & 61 Reade Street, N. Y.

Depot for

THOS. JOWITT & SONS,

(Sheffield, England,)

FILES and HORSE RASPS.

Rough & Ready

And

CLIPPER SCYTHES,

Warranted.

Manufacturers of the

Patented March 4, 1873.

Agents for

Norwich Lock MFG. CO.

"BEAVER"

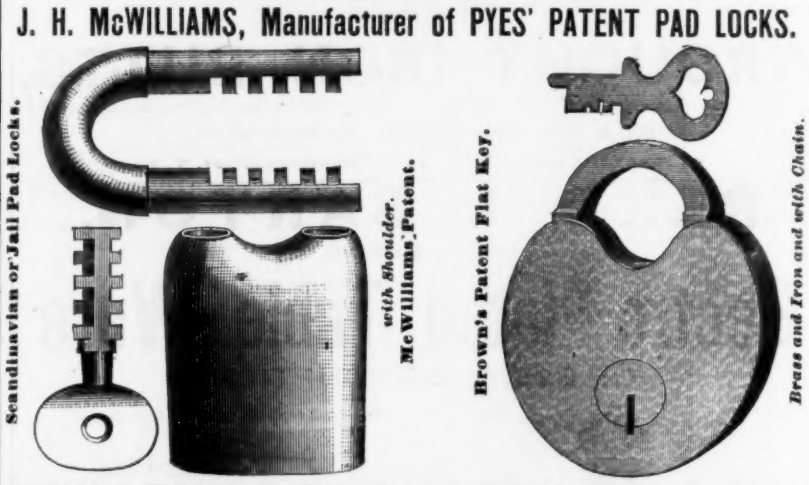
(American)

FILES and HORSE RASPS.

"WIDE AWAKE"

AXES.

J. H. McWILLIAMS, Manufacturer of PYES' PATENT PAD LOCKS.



JOHN J. TOWER, Sole Agent, 96 Chambers St, N. Y.

CAPEWELL'S GIANT NAIL PULLER.

Saves Boxes, Nails and Labor.

Sold by all House Furnishing and Hardware Jobbers.

MALTBY, CURTISS & CO.,

MANUFACTURERS,

34 Reade Street, New York

General Agents for CAPEWELL'S LITTLE GIANT TACK HAMMER.

STURTEVANT

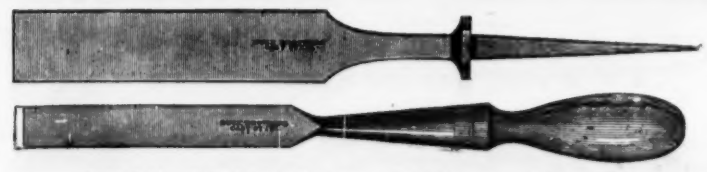
Pressure Blowers, Fan Blowers and Exhaust Fans.

10,000 SOLD IN SIX YEARS.

SEND FOR ILLUSTRATED CATALOGUE.

B. F. STURTEVANT, 72 Sudbury Street,

BOSTON, MASS.



BUCK BROTHERS, Millbury, Mass.

The most complete assortment in the U. S. of **Shank, Socket Firmer, and Socket Framing Chisels,**

PLANE IRONS.

Gouges of all lengths, and circles beveled inside or outside. Nail Sets, Scratch and Belt Awls, Chisel Handles of all kinds. Orders filed promptly; generally same day as received.

PHILADELPHIA.

(Corrected weekly by Lloyd, Supplee & Walton).

Terms, 30 days. For 60 or 90 days, interest added at 6 per cent. per annum.

Anvils.—Solid Cast Steel....ꝑ lb 14c
Peter Wright's, (Advanced April 1st.) ꝑ lb, gold, 11½c
Wilkinson's.... " 11c
Eagle....list 11 cents—dis 20 @ 20&10 %

Apple Parers.—Union....per doz $7 00
Victor.... " 7 75
Domestic.... " 7 75
Reading.... " 7 75
Bay State Paring, Coring and Slicing.... " 15 00
" " Peach Parers.... " 10 50

Axes.—Mann's Light....Per doz. $12 00 @ 11 50
Hunt's Light.... " 14 00 @ 12 50
Red Indian, all sizes.... " 12 00 @ 11 50
Red Chieftain all sizes.... " 12 50 @ 12 00
Crown Prince.... " 12 50 @ 12 00

Augers and Auger Bits.—Pierce's Pat.
Twist Bits....dis 30 %
Douglass' & Ives' Bits....dis 40&10 %
Connecticut Valley Auger Bits....dis 40&10 %
Cook's Bits....dis 40 10&10 %
Jennings' Bits....dis 10 %
Bates' Nut Augers....dis 40&10 %
Douglass' & Ives' Augers....dis 40&10 %
Watrous' Ship Augers....dis 10&15 %
Bonney's Pat. Hollow Augers....dis 25 %
Stearns' Patent Hollow Augers....dis 25 %

Balances.—
Landers, Frary & Clark's.... } Sold on Morton's new
Morton's.... } List....dis 50 %
Chattillon's.... }
Common Spring with Hook....ꝑ doz $1 88 @ 2 00

Bells.—Bevin Bros. Mfg Co. Light Hand
Bells....dis 70 %
Common (Tissue Paper Weight)....dis 70&10 %
Swiss Pattern Hand Bells....dis 50 %
Connell's Door Bells....dis 50&5 @ 50&10 %
Gt. Western & Kentucky Cow....dis 50&10 @ 50 10&5 %

Boring Machines.—Bates' Mfg. Co., complete with augers....dis 20 @ 25 %
Douglas Mfg. Co., complete with augers..dis 20 @ 25 %
Common Boring Machines, no Augers....$4 00 @ 3 75
Angular " " ....5 00 @ 4 75

Bolts.—Eastern Carriage Bolts....dis 75 %
Western " " ....dis 75 %
Philadelphia " " ....dis 60 %
" Eagle, (Coleman's)....dis 60 %
Wrought Shutter, Stanley....dis 50 @ 50&10 %

Braces.—Barber's....dis 40&5 %
Backus....dis 50 %
Bartholomew's American Ball....dis 10&10 @ 15&10 %
Spofford....dis 50 %

Butts.—Cast Fast Joint, Narrow....dis 25&10 @ 30&10 %
" " Broad....dis 35&10 @ 40&10 %
Cast Fast Loose Joint....dis 45&10 @ 50&10 %
" Acorn, Loose Pin....dis 40&10 @ 45&10 %
" Mayers & Parliament....dis 35&10 @ 40&10 %
" Acorn Jap'd....dis 40&10 @ 45&10 %
Wrought Loose Pin....dis 35&10 %
" Table Hinges and Back Flaps....dis 30&10 %
" Narrow....dis 30&10 %
" Loose Joint....dis 35&10 %
Parker's Blind Butts.... }
Sheperd's " .... } Discount 60 %; by the case
Garretson's " .... } 60&10%.
Clark's " .... }
Lull & Porter's Hinges....dis 60 %; by the case, 60&5 %
Garretson's Blind Butts Light No. 0.... } Discount 60 %
" " Lull & Porter Pattern } By the case
Cherrytree Blind Butts.... } 60&10 %

Chains.—German Halter....dis 20 %
" Coil....dis 20 %
Galvanized Pump....net 13 @ 13½c
Best Proof Coil Chain—

ꝑ lb..	14	10½	9½	9	8¾	8½	8c gold
	3-16	¼	5-16	⅜	7-16	½	⅝ in.

By the cask, 560 lbs., ½c per lb. less Common Chain, ½c per lb. less.

Chisels.—Socket Framing....dis 60 @ 60&10 %
Socket Firmer....dis 60 @ 60&10 %
Tang " ....dis 40&10 @ 50 %
Beaty's Framing and Firmer....dis 2 %

Casters.—Iron Bed....dis 30&10 @ 40 %
Porcelain Wheel Bed....dis 30&10 @ 40 %
Iron and Brass Wheel Plate....dis 40 @ 40&10 %
Porcelain Wheel " ....dis 50 @ 50&10 %

Clothes Wringers.—Universal....per doz $72 00
Novelty.... " 72 00
Discount on 2 dozen lots, $2 per dozen.

Coffee Mills.—Common Box and Side....dis 15 %
Patent Box and Side....dis 15 %

Cutlery.—American Pocket (best)....dis 25 %
Landers, Frary & Clark, J. Russell & Co. and Lamson & Goodnow Mfg. Co. Manufacturers' net prices

Drawing Knives.—Hart Mfg. Co.'s....dis 60 %
Adjustable Handle....dis 10 @ 15 %
Beatty....dis 15 @ 20 %

Fry Pans.
Tinned....dis 40 @ 45 %

ꝑ doz..	$3 50	4 00	4 50	5 00	5 30	6 50	7 50	9 00	10 00
No....	0	1	2	3	4	5	6	7	8

Burnished....dis 40 @ 45 %

ꝑ doz..	$3 00	3 75	4 25	4 75	5 25	6 00	7 00	8 00	9 00
No....	0	1	2	3	4	5	6	7	8

Files.
Nicholson Mill Files....new list
" Bastard.... "
" Taper.... "
Butcher's Mill (Advanced March 5th)....$5 25 to £ gold
" Bastard....5 25 to £ gold
" Taper....5 25 to £ gold

Fluting Machines.
K. F. M.—4½ in. rolls, $5 50....dis 15 %
" —6 in. rolls, $6 50....dis 15 %
Mrs Knox—4 in. rolls, $5 75....dis 20 %
" —6 in. rolls, 7 00....dis 20 %

Hammers.
Yerkes & Plumb's....dis 15 %
Hammond & Son's....dis 15 %
Veree....dis 20 %

Hatchets.
Beatty's....dis 15 @ 20 %
Shingling and Half. { ꝑ doz...$7 00 7 50 7 75 8 00 / No.... 1 2 3
Yerkes & Plumb....dis 15 %
Shingling and Half. { ꝑ doz...$7 00 7 50 8 00 8 50 / No.... 1 2 3 4
Claw.... { ꝑ doz....$7 50 8 00 / No.... 1 2 3

Hinges.
Strap and T, (Changed March 21)....dis 40 %

Horse Nails.

Nos.	6	7	8	9	10
Ausable....	27	25	24	23	22
Globe....	28	26	25	24	23
Brundage....	26	24	23	22	21

Nos.	5	6	7	8	9	10
Putnam....	32	28	26	25	24	23

On Ausable, Globe and Brundage 1000 lb lots....dis 5 %

Knobs.—Door, Mortise and Rim.
Makes in Combination....new list dis 45&5 %
Extra discount for cash 2 %
Mineral and Rim....dis 5 %

Locks and Latches.—Rim and Mortise....dis 45&5 %
Extra discount for cash 2 %
Till and Cupboard....dis 25 %
American Padlocks....dis 50 %
Scandinavian Pad Locks.
ꝑ doz....$10 50 10 50 12 00 12 00 15 00 15 00 } dis 15 %
No.... 9 9½ 10 10½ 11 11½ }
ꝑ doz....$18 00 18 00 22 00 22 00 } dis 15 %
No.... 12 12½ 13 13½ }
Trunk Locks....dis 5 @ 10 %
Thumb and Roggens Latches....dis 25 %

Lanterns.—Square Candle and Oil....dis 10 %
Globe for Oil....dis 10 %
" " Kerosene....dis 10 %
Tubular Lanterns....dis 10 %

Mattocks.—Long and Short Cutter....dis 25 %
Western Pattern....dis 25 %
Pennsylvania Pattern....dis 15 %

Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets....dis 20 %
Stebbins' Gates....dis 60&10 @ 65&10 %
Lincoln's " ....dis 40&10 @ 50 %
Landers, Frary & Clark's Petroleum....dis 15&10 %
Taylor's Petroleum Faucets....dis 20&10 %
Brass Liquor Cocks....dis 20&10 %

Meat Cutters.—Dixon's....dis 20 %
Woodruff....dis 20 %
Stowe....dis 20 %
Hale's....dis 35 %
Stuffers....dis 20 %

Planes.—Auburn Tool Co., "Bench"....dis 40 %
Second Quality....dis 50 %
Metallic Plane Co....dis 25&5 %
Evans Pat. Circular....net

Plumbs and Levels.
Adjustable....dis 60&10 %
Non-Adjustable....dis 60, 10&10 %

Plane Irons.—American....list net
Butcher's....gold £, $5 50

Picks.—Philadelphia....net
Pittsburgh....net

Rules....dis 60, 10&10 @ 70 %

Rakes.—Cast Steel Garden....dis 40 @ 40&5 %
Malleable Garden....dis 40 @ 40&5 %
Wood Head Iron Teeth....dis 40 %

Steelyards.—American Pattern....dis 15 %

ꝑ doz....	$5 50	7 00	9 00	10 00	11 00	12 00
No....	50	100	150	200	250	300

English Pattern....dis 15 %

ꝑ doz....	$7 00	8 67	10 67	12 07	14 67	16 67
No....	50	100	150	200	250	300

L. F. & C. Excelsior....dis 10 %

ꝑ doz....	$9 00	10 00	12 00	15 00	18 00	21 00
No....	50	100	150	200	250	300

Scythes.—Golden Clipper, Damascus Blade, Boxed and Sharpened....ꝑ doz. $10 00 net
Golden Clipper No. 10, Boxed and Sharpened....ꝑ doz $9 75 net
Green Clipper No. 5, Boxed and Sharpened....ꝑ doz $9 50 net
Common Scythes....ꝑ doz $7 50 @ 9 00

Squares.—Steel and Iron, new list....dis 50 %

Saws.—Disston's Cross Cut....dis 15 %
Disston's Hand....dis 12½ %
W. McNiece's H'd, Cross-Cut & Circ'r, new list..dis 15 %
Boynton's Lightning, new list....dis 40 %
" Champion....dis 45 %

Shovels and Spades.
Rowland's Plain Back, Jan. 23d....dis 30 @ 35 %
" Back Strap " ....dis 30 @ 35 %
Oliver Ames & Sons....dis 20 %
Brady Shovel Co....dis 20&5 %

Sad Irons.—Richmond (polished face)....per lb. 5½c
Richmond (polished face)....by the cask " 5½c

Stone.—Arkansas Oil, No. 1....ꝑ lb $1 75
Turkey Oil, No. 1.... " 1 00
Washita Extra.... " 30c
" No. 1.... " 22c
" " 2.... " 18c
.... " 5½c

Screws.—Iron....new list, April 1st, 1875, dis 62½ %
Brass....dis 52½ %

Spoons.—
Plated....dis 40&10 @ 50 %
Britannia, Boardmans (new list)....dis 50&10 %
" Parkers (old list)....dis 50 %
German Silver....dis 30 %
" Light....new list dis 35 %
Lalance & Grosjean Iron....dis 10 %

Springs.—Gray's Door....dis 50 @ 50&10 %
Torry's Door....dis 50 @ 50&10%

Stocks and Dies.....dis 10&5 %

Stove Polish.—Gem....ꝑ gross, $5 00
Onyx.... " $5 00

Try Squares.—Winterbottom....dis 10 @ 15 %
Stanley Rule and Level Co....dis 45&10 %
Willis Thrall, No. 2....dis 30&10 %
Disston's No. 2....dis 40 %

Tacks, &c.—Half Weight Tacks....dis 72½ %
" " by the case...dis 72½&7½ %
Clout and Finishing Nails....7½ %
" " " by the case....dis 7½ %

Traps.—Genuine Oneida—Newhouse list....dis 20 %
Imitation " " ....dis 30 %

Vises.—Solid Box, currency....ꝑ lb net 14c

Wrenches.—Coes Genuine....dis 40 @ 40&5 %
Coes Imitation Wrought Bar....dis 50&10 %
" " Malleable Bar....dis 60&10 %
" " (Kellogg) Malleable Bar....dis 65&10 %
Tafts Pattern (Wrought Bar)....dis 70 @ 70&10 %
Philadelphia Tool Co.'s Pat. Duplex....dis 25 %
" " " Improved Baxter....dis 25 %
" " " Adjustable Fork....dis 25 %

Wire.—No. 0 to 18....(Advanced April 24th)....dis 40 %
No. 19 to 26.... " " ..dis 47½ %
No. 27 to 36.... " " ..dis 52½ %
Coppered 0 to 12....dis 15 @ 20 %
Tinned Broom Wire....dis 25 %
Galvanized Wire No. 1 to 18....dis 40 %

BUFFALO.

Reported by Messrs. Sidney Shepard & Co.
August 9, 1875.

Augers—Snell Mfg. Co....dis 25 %
Axes—Francis....11 50
Bits, Auger—Snell Mfg. Co....dis 25 %
Phœnix....dis 40 %
Bells, Cow—Yaw's Genuine....dis 20 %
Braces—Bit, Spofford's Patent....dis 50 %
Brads, Cut....dis 50&7½ %
Boards—Stove, Brooks' Pat.dis 35 % 4 mos.; 35&5 % 30 dys
Butts—Brass....dis 30 %
Wrought Narrow....dis 30 %
" Broad, Loose Joint....dis 35 %
" Table and Back Flaps....dis 30 %
Wrought Butts, Loose Pin....dis 35 %
Belting—Rubber....dis 30 @ 10 %
Leather, new list, oak tanned....dis 20 %
Brick—Bath (box of 2 doz) Best English....$1 25
" Rutherford....$1 00
Can Openers—Sprague's....dis 50 %
Cases—Parlor Coal Hod....dis 15 %
Chalk—White, Carpenter's....ꝑ gross, 57c
Red, Carpenter's.... " 90c
Chisels—Firmer Socket....dis 60, 10&10 %
Framing Socket....dis 60, 10&10 %
Corner Socket Chisels....dis 60, 10&10 %
Slick's Carpenters'....dis 60, 10&10 %
Castings—Malleable....ꝑ lb 9½c
Egg Beaters—"Peerless"....per doz $3 00
"Centripetal"....per doz 5 00

Elbows—Corrugated....	5	5½	6	7	
Charcoal....	$3 50	4 50	5 25	6 50	dis 10 %
Russia....	7 00	9 50	12 00	14 00	

Files—Maischoss Bros....dis 50 %
Fluters—Geneva Hand....ꝑ doz. $15 00
Freezers Ice Cream—"Champion"....dis 33⅓ %
Hammers—Henry W. Kip's....dis 10 %
Hinges, Gate—Shepard's....dis 50&10 %
Hinges—Window Blind—
Shepard's and Standard....dis 60&10 %
Wrought Strap and T....dis 33⅓&10&5 %
Hods, Coal—Plain, Black and Galvan'd...new list dis 15 %
Funnel, Black and Galvanized.... " dis 15 %
Fancy and Helmet.... " dis 15 %
Sad Irons....3½c
Kettles—Brass....ꝑ lb. 45c
Copper, "Hand Made"....38c. @ 40c.
Enameled....dis 50&10 %
Knives, Drawing—Oval No. 1....dis 60, 10&10 %
Razor Blade....dis 60&10 %
Lanterns "Peerless."....No. 1 5 10
ꝑ doz $26 00 $10 50 $13 75 dis 10 %
Tubular....$11 00
" with Guards....11 50
Machines—Apple Paring, "Keystone"....7 75 ꝑ doz
Machines—Boring, Snell's....dis 20 %
Mills, Coffee—Box and Side, common....dis 15 %
Box Union and Eagle....dis 15 %
"American"....dis 20 %
Molasses Gates—"Self Measuring"....dis 20 %
Nails—Clout and Finishing....dis 7½ %
Shoe....dis 7½ %

Horse, Ausable....No.	5	6	7	8	9	10
	30	27	25	24	23	22c

" " Pointed & Polished....add 1c ꝑ lb
" " 1000 lbs....dis 5 %

" Clinton....No.	6	7	8	9	10
	21	19	18	17	16c

Packing—Rubber....dis 30 @ 10 %
Paint—White Lead, U. S. Gov't....ꝑ lb 8½c
Pans—Dripping....ꝑ lb 10c
Rivets—Iron, Black and Tinned....dis 25&7½ %
Screws—"American Screw Co"—
Flat Head, Iron....dis 62½ %
Flat Head, Brass....dis 52½ %
Skates and Straps—White's....dis 20 %
Spoons, Iron Tinned....dis 10 %
" by the case....dis 20 %
Plated Rogers' A No. 1....dis 50 %
Britannia....dis 50&10 %
Squares—Steel and Iron....new list 50 %
Scales—Buffalo Scale Works....dis 25 %
Fairbanks....dis 15 %
Stove Polish—Gem....ꝑ gross, $4 50
" Dixon's.... " 6 00
Tacks—Half Weight Am. Iron....dis 72½&7½ %
Vases—Palace Coal....dis 15 %
Vises—
Parallel, Buffalo...Old pattern, dis. 30 %; new, do.dis 20 %
Ware—French, Tinned and Iron....dis 20 %
Stamped and Japanned....dis 5 %
Cast Iron Hollow....dis 40 %
Wire—Bessemer Steel....dis 10 %

Tin Plates.—Add for each X....2 50
10x14, IC. Charcoal...$10 00 | 14x20 C. terne....$9 00
12x12, " ...10 50 | 20x28 C. " 20 00
12½x17, " ...9 50 | 20x28 X. " 25 00
14x20, " ...11 00 |

Pig Tin—Straits....24c @ 25c
Bar Tin....26c

Solder—No. 1, Crook's....16 c

Sheet Zinc—
"Lasalle"....570 100 lb casks
$11 75 11 05 ꝑ 100 lbs
Sheets....$10 75

Babbitt Metal....ꝑ lb 12c

Iron Wire—Bright and Annealed....dis 45 %
Coppered....dis 40 %
Tinned....dis 25 %
Tinned Broom, { Nos. 20 21 23 / 20c 21c 21c } ....dis 35 %

Copper—Sheathing 14 @ 18 oz....ꝑ lb 30c
Planished....ꝑ lb 37c @ 39c
Bottoms....ꝑ lb 38c
Bolts....ꝑ lb 31 @ 33c
Braziers' Sheets....ꝑ lb 31 @ 33c

Sheet Iron.—
18 Common....$4 05
24 Common....4 25
26 Common....4 45
24 W. D. Wood & Co., Smooth Finish....6 30
Am. Russia....A. 14c B. 11c
Gen. Russia, No. 1 stained....16½c
" " clean....15½c
Galvanized....dis 30 %

CINCINNATI.

Reported by Sellew & Co., Importers and Jobbers Metals, No. 214, 216 and 218 Main street.
August 2d, 1875.

Tin Plate.—I. C. 10x14 Charcoal....$10 50 @ 11 50
I. X. 10x14 Charcoal....12 50 @ 14 00
I. C. Terne 14x20....9 50 @ 11 00
I. C. Terne 20x28....20 50 @ 22 00
I. C. 20 inches Continuous....21 00

Block Tin.—
Pig....ꝑ lb 26c
Bars....ꝑ lb 27c

Solder.—
A 1....ꝑ lb 16c
Roofing....ꝑ lb 17c
S. & Co....ꝑ lb 21c

Lead.—Pig....ꝑ lb 7c @ 7¼c.
Bar....ꝑ lb 8½c

Copper.—
Ingot....ꝑ lb @ 24c
Planished.... " @ 38c
Sheathing.... " @ 31c
Copper Drops.... " @ 34c
Sheets.. 6 to 7 lb.... " @ 37c
" 8 to 9 lb.... " @ 35c
" 10 to 12 lb.... " @ 33c
" 18 lb. up.... " @ 31c
Copper Bottoms.... " @ 38c

Zinc. Cask, 500 to 1000 lbs....ꝑ lb 10½ @ 10¾c
Case, 100 lbs.... " 10¾ @ 11 c
Slab....7½c

Brass.—Roll, No. 6 to 30....ꝑ lb 30c
Roll, No. 30 to 38.... " 35c
Wire, No. 0 to 20.... " 35c
" 20 to 25.... " 40c

Babbit Metal.—Sellew & Co....35c
Allens'.... " 20c
Market.... " 12c

Antimony....ꝑ lb 17c
Bismuth....ꝑ lb $4 00
Nickel....ꝑ lb $3 50

Russia Iron.—Bundle....ꝑ lb 17c
Less than bundle....ꝑ lb 18c
No. Stained....ꝑ lb 15c @ 16c

Sheet Iron.	Com. B.	Smooth Fin. S. L. U.	Smooth D Re'fd.
15 to 20....	4c	5 10c	7 10
22 to 24....	4 10c	5 20c	7 20
26....	4 30c	5 30c	7 30
27....	4½c	5½c	7 20
30....	5½c		

Galvanized Iron.—Full bundles....dis 27½ %
Nos. 18 to 20....12c | No. 26....14c
22 to 24....13c | 27....15c

Bar Steel.—Silver, ꝑ lb 16c; Crescent, 21c.
Iron Wire....dis 33 %
Enameled Ware....dis 30 %

One Piece Corrugated Elbows....dis 10 %

Charcoal Iron.			Russia Iron.		
4½ inch....	ꝑ doz	$2 50	4½ inch....	ꝑ doz	$5 00
5 "	"	3 50	5 "	"	7 00
5½ "	"	4 50	5½ "	"	7 50
6 "	"	5 20	6 "	"	12 00
7 "	"	6 50	7 "	"	14 00

Leader Elbows, Flat Crimp Retinned or Galvanized.—Dis. 10 %

	ꝑ doz.		ꝑ doz.
2-inch....	$1 75	2½-inch....	$2 75
3-inch....	2 25	3½-inch....	3 25
4-inch....	2 50	4½-inch....	3 50

Sheet Iron Bread Pans....ꝑ lb 8½c
American Broilers....ꝑ doz. $13 50
Tinmen's Machines....dis 5 %
Sad Irons....ꝑ lb. 3½ @ 3¾c
Brass Kettles.—Ansonia....45c
Dog Irons....3½c

PITTSBURGH.

The following are the Card rates of Lewis, Oliver & Phillips, H. B. Newhall, 11 Warren St., New York, Agent. Iron, standard list assorted sizes, for large orders, specifications to include Bands, small Rounds and Ovals, 2.5c. rate, 2 % off net.

Flat Rail (1¼x¼), punched and coun'sunk..4 1c ꝑ lb net
Iron Wedges....4½c ꝑ lb net
Norway Nail Rods....5½c ꝑ lb net
Crow Bars (in ordering please state whether "Wedge" or "Pinch" point)....4½c ꝑ lb net
Beetle Rings....8 c ꝑ lb net
Fence Pickets—
⅝ round, bent to shape, 25c ꝑ ft. of fence, less 15 % off net.

Discount off Standard List.

Carriage and Tire Bolts....75 % off net
Carriage and Tire Bolts delivered on cars or boats in Pittsburgh.
Stove Bolts....20 % off net
Machine and Square Head Bolts....40&10 % off net
Coach and Lag Screws....40&10 % off net
Bolt Ends....40 % off net
Pat. Hot Pressed Square and Hexagon Nuts, small sizes, from 3-16 to ⅜ in....8½c ꝑ lb off net
Pat. Hot Pressed Square and Hexagon Nuts, large sizes, from 7-16 to 2 in....6¾c ꝑ lb off net
Washers, all made from new band iron, small sizes, from 3-16 to ⅜ in....9½c ꝑ lb off net
Washers, all made from new band iron, large sizes, from 7-16 to 1⅜ in....7¾c ꝑ lb off net
Nuts and Washers in 25 lb. boxes, ½c ꝑ lb ex. Nuts and Washers in lots less than one keg each size, ½c ꝑ lb ex. Nuts and Washers in 5 lb. boxes, 1c. ꝑ lb ex. net prices.
Standard Caps, for Plows....5½c. ꝑ lb net
Iron Harrow Teeth, in lots of 1 ton or more, packed in 200 lb. boxes, 1 in. diam. 3½c ꝑ lb net; ½, ⅝ in. diam. 3½c ꝑ lb net; ¾ in. diam. 3½c ꝑ lb net.
Patent Headed Harrow Teeth, packed in boxes ½c ꝑ lb ex
Skein Bolts, in bulk, in lots of 1 keg or more, ⅜ in. diam. 5c ꝑ lb net; 9-16 in. diam. 6c ꝑ lb net; ½ in. diam. 7c ꝑ lb net. 1c ꝑ lb extra when less than 1 keg of each size is ordered.
Strap & T Hinges...33⅓&10 % off net, delivery as custo'ry
Screw Hitching Rings....$5 25 ꝑ 100 net
Bridge and Roof Bolts—
1 to 2 in. diam. over 8 ft. long....ꝑ lb 3¾c net
1 to 2 in. diam. from 4 to 8 ft. long.... " 4 c net
1 to 2 in. diam. from 1½ to 4 ft. long.... " 4½c net
⅝, ¾ and ⅞ in. diam. over 4 ft. long.... " 4½c net
⅝, ¾ and ⅞ in. diam. from 1½ to 4 ft. long " 5 c net
Bridge bolts with upset ends....½c. ꝑ lb extra
Wrought iron plates, punched....4½c. ꝑ lb net
Cast Iron Washers....ꝑ lb 3¾c net
Duck Nest Tuyere Irons....$14 50 ꝑ doz net

WAGON HARDWARE.

Wagon Box Strap Bolts—

10 in. long by	7-16 at Screw End,	ꝑ set of	8	bolts..	45c
12 "	½ "	"	8	" ..	55c
10 "	9-16 "	"	8	" ..	65c
12 "	9-16 "	"	8	" ..	70c
14 "	9-16 "	"	8	" ..	80c
10 "	⅝ "	"	8	" ..	80c
12 "	⅝ "	"	8	" ..	80c
14 "	⅝ "	"	8	" ..	90c
16 "	⅝ "	"	8	" ..	1 00
18 "	⅝ "	"	8	" ..	1 10
20 "	⅝ "	"	8	" ..	1 20

5c ꝑ set for each additional inch over 14 in. All lengths made.
In ordering Box Strap Bolts please give diameter at Screw End.
Wagon Box Rods, narrow track, each....15c
" " wide track, each....17c
Single Tree Irons, ꝑ set of four pieces....30c
Wrought Iron Bolster Plates, 2¾ in. wide, ꝑ set....45c
" " " 3 " " 50c
" " " 3¼ " " 55c
" " " 3½ " " 60c
Wagon Brake Ratchets, each....14 c
" " " finished with guard, each..40 c
Wrought Hammer Straps, heavy pattern, each....13 c
" " " light " each....12 c
" Rub Irons, each....9 c
Stay Chain Hooks, each....5½c
Double and Single Tree Clips, figure 1, each....8 c
" " " " " 2, each....9 c
" " " " " 3, each....11 c
Axle Clips, Round Part ⅝, Flat Part 1¼, each....8c
Wagon Clevis, including Pin, complete, each....10c
Pole Caps, each....24c
Single Tree Hooks, Nos. 1 and 2....4½c
Strap Bolts, Rods, Single Tree Irons, Bolster Plates, Brake Ratchets, Hammer Straps, Rub Irons, Stay Chain Hooks, Clevis and Pin, Clips, Single Tree Hooks, and Pole Caps, in lots of 50 sets....dis 15 %
Wagon Box Staples, 1½ to 2¼ in. to clinch. ꝑ 1000 $11 00 net
" " " Bevel Box Iron, to rivet on. ꝑ 1000 7 50 net
Neck Yoke Eyes, each....4½c net
" " with ⅜ rings, each....7½c net
King Bolts, ⅞, 1, 1⅛, and 1¼ in. diam....ꝑ lb 4½c net
Wagon Rivets, ex. large, flat, oval and steeple head, ¼ in. diam. all lengths.... " 8½c net
Wagon Rivets, 3-16 in. diam., all lengths.... " 9½c net
" " ⅜ to 1 inch long....ꝑ lb 1c extra
" " & Nails, in 5 lb paper boxes.... " 1c extra
" " " in 25 lb wood " .... " ½c extra
Wagon and Hinge Nails, ¼ in....ꝑ lb 17 c net
" " " 3-16 in.... " 19 c net
Wagon Rivets and Nails, in less lots than one keg each size.... " ½c extra
Double Tree Plates.... " 8c net
Coupling " .... " 5c net
Tongue " .... " 8½c net
Neck Yoke Plates.... " 10½c net
Tongue Cap Iron, 1¾, 2 & 2¼ in. wide, same price ꝑ lb as Band Iron.
Wagon Chains, Stay, Lock and Tongue, 5-16 in. ꝑ lb 10½c net. ¼ in., 11½c. net
Above prices are free on board cars in Pittsburgh. Subject to change of market, without notice.

DETROIT.

(Reported by Messrs. Jewett & Root.)

Tin Plate.—Best Charcoal
IC, 10x14....$11 00
IX, 10x14....13 75
XX, 10x14....16 50
IC, 12x12....11 50
IX, 12x12....14 25
IC, 14x20....12 00
IX, 14x20....14 75
XX, 14x20....17 50
XXX, 14x20....20 25
XXXX, 14x20....23 00
DC, 100 Plate....10 50
DX, " 13 25
DXX, " 16 00
DXXX " 18 75
DXXXX 100 Plate..21 50
IX, 14x14....22 75
IC, 10x14 W....10 50
IX, 10x14 W....13 25

Roofing Tin.—Best Char.
IC, Terne, 14x20....$10 25
IX, " 14x20....13 00
IC, Terne, 20x28....22 00
IX, " 20x28....27 00

Coke Tin.—
IC, 10x14 Coke....$10 00
IX, 10x14, Coke....12 75
IC, 14x20, " 11 00

Pig Tin.—
Large Pigs....25c
Small Pigs....27c
Bars....28c

Solder.—No. 1....16c
No. 2....15c

Sheet Zinc.—
In any quantity....10½c

Bright Wire.
63 lbs. in bdl....dis 40 %

Copper.—
Sheathing....31c
Copper Bottoms....32c

Planished Copper.—
Sheathing, 14x48....38c
Boiler Size, No. 7....40c
" " No. 8....40c
" " No. 9....40c

Sheet Iron.—
No. 18 Am. Com....4 40
No. 24 Am. Com....4 60
No. 26 Am. Com....4 80
Patent Planished Russia, Nos. 24, 25 and 26....14c
Genuine Russia, No. 9, 10, 11 and 12....18c
Broken bdls. ½c. extra.

W. D. WOOD'S & CO. S SHEET IRON.—
Nos. 15 to 20 Smooth $5 10
" 21 to 24....5 30
" 25 & 26....5 50
" 21 to 24 Char'l..6 80
" 25 & 26 " ..7 00

Steel.

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HACKLES, GILLS, CARD CLOTHING, CARD TEETH, HACKLE AND GILL PINS,
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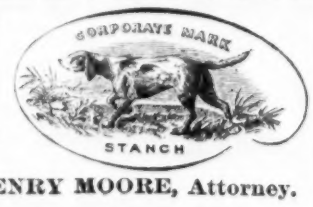

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All descriptions of **Cast and German**

Spring and Plow Steel

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AXLES, STEEL TIRE,

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Augers.—Watrous Ship.....dis 10 %
L'Hommedieu Ship.....dis 15 %
Axes.—Forester's Favorite, Bronzed.....$12 00
Blue Jackets, Blue..... 11 5
Excelsior, Black..... 11 00
Chopper's Pride, Bronzed..... 10 50
Red Cross, Red..... 10 00
Red Cross, Handled..... 12 50
Boy's Handled Blue Jackets..... 12 00
Axe Handles.—Wadleigh's Oak—
A (Extra) $2·50. B (No. 1) $2·00. C (No. 2) $1·50 ₩ doz
Bells, Sleigh—
Fancy Body, Patent Leather, Cloth Bound, White Metal, 30, No. 1.....$1·70
Fancy Body, Patent Leather, Cloth Bound, White Metal, 26, No. 1..... 1·80
Fancy Body, Patent Leather, Leather Bound, Extra Tinned, 30, No. 1..... ·28
Fancy Body, Patent Leather, Leather Bound, Extra Tinned, 26, No. 1..... 2·50
Fancy Body, Patent Leather, Leather Bound, Silver Plated, 30, No. 1..... 3·38
Fancy Body, Patent Leather, Leather Bound, Silver Plated, 26, No. 1..... 3·50
Shaft, Strap, White Metal, House Bells, extra, 6, No. 1.....per pair, 50c.
Common, 6, No. 1..... " 45c.
Blind Hinges.—
Orr or Washburn's.....per hundred sets $9 50
Blind Fasts.—
Orr or Washburn's.....per hundred set $6 00
Bolts.—Carriage, Phila., "Girard Works.....dis 50&10 %
Borax.—Best Refined..... ₩ ℔ 15c
Borers.—Angle. Backus'.....dis 30 %
Boring Machines.—Angle.....each $4 75
Common. Snell's quality.....each 3 75
Braces.—Barber's.....dis 40&5 %
Backus'.....dis 50 %
Spofford's.....dis 50 %
Amidon.....dis 50 %
Brackets.—Star Bronzed.....new list net
Star Japanned.....new list net
Store Shelf.....new list net
Brass Faucets.—L. F. & C.....dis 25 %
Butts.—Union Drilled Loose Joint.....dis 45&10 %
" " Wire Fast Joint.....dis 25&10 %
" " Acorn Loose Joint...dis 45&10 %
Brass Butts.....dis 30 %
Wrought Table Butts and Back Flaps.....dis 30 %
Wrought Narrow Butts.....dis 30 %
Can Openers—Sprague's.....dis 50 %
No. 1, Iron Handle.....$4·00
No. 2, Wood Handle..... 4·50
Cartridges.—"U. S. Cartridge Co."....dis 50&10 %
Chisels.—"Buck Bros.' Shaw Goods....add 20 @ 22½ %
Socket.....add 22½ @ 25 %
Churns.—Lightning—
Redheffer patent..... 3 4 5 6 gall
per doz $22 00 $27 00 $31 50 $36 00
Coal Hods.....dis 35 %
Fancy Japanned, No. 4, 15 in., $8·00; 5, 16 in., $9·00; 6, 17 in., $10·00.
Fancy Galvanized, No. 4, 15 in., $11·50; 5, 16 in., $13·00; 6, 17 in., $14·00.
Perfection, Jap'd, No. 4, 15 in., $12·00; 5, 16 in., $13·00; 6, 17 in., $14·00.
Perfection, Galv'd, No. 4, 15 in., $15·00; 5, 16 in., $16·00; 6, 17 in., $17·00.
Morning Glory, Jap'd, No. 4, 15 in., $12·00; 5, 16 in., $13·00; 6, 17 in., $14·00.
Morning Glory, Galv'd, No. 4, 15 in., $15·00; No. 5, 16 in., $16·00; No. 6, 17 in., $17·00.
Compasses and Dividers.—Bemis'.....dis 35 %
P. S. & W.....dis 25 %
Cordage.—Manila (usual trade dis.). ..... ₩ ℔, 15c
American Tarred Hemp Lath Yarn..... ₩ ℔, 10c
Corn Hooks.....per doz $2·75
Cow Ties.....dis 10 %
No. 30, Open Ring, 3 foot, No. 6, with Toggle.....$3·70
No. 35, " 3 " No. 6, " Snap..... 3·90
No. 40, " 3½ " No. 5, " Toggle .... 4·25
No. 45, " 3½ " No. 5, " Snap..... 4·40
No. 50, " 4 " No. 4, " Toggle .... 4·85
No. 55, " 4 " No. 6, " Snap..... 5·00
No. 60, " 4½ " No. 3, " Toggle .... 5·60
No. 65, " 4½ " No. 5, " Snap..... 5·80
Crow Bars.—Iron, steel Points..... ₩ ℔, 5½c
"Sweet" Steel Bars..... ₩ ℔ 11c
Brown's Steel Bars..... ₩ ℔ 10c
K. P. & Co. Extra Drill Steel..... ₩ ℔ 15c
Dividers.—Cook's Nickel Plated.....dis 15 %
Door Springs.—Stimson's Patent.—
No. 7, Light inside doors, $12·00.....dis 25 %
No. 8, " outside " $18·00.....dis 25 %
Torrey's.....$4·00
Egg Beaters.—Lightning, Redheffer pat. 1 qt.. 3 qts.
per doz $8 00 $12 00
Emery.—Alden..... ₩ ℔ 6½c
Wellington Mills..... ₩ ℔ 10c
Files.—Earl Smith & Co.'s English.....$5 to £ gold
American.....$5 to £ currency, less 12½ %
Nicholson.....new net list
Wheeler, Madden & Clemson.....25 net
Stubb's Tapers, genuine, 3 in., $1·50; 3½, $1·63; 4, $1·88; 4½, $2·13; 5, $2·50.
Funnel Irons.—$2·50 2·50 2·50 3·25 per doz
5, 5½, 6, 7 inch.
Deep Flange.—$3·50 3·75 4·00
5, 5½, 6 inch.
Hammers.—Maydole.....dis 12 %
M., B. & D., solid cast steel, adze eye, No. 1, $10; 1½, $8·75
" " " " bell face, No. 1, $11: 1½, $9·75.
Hangers & Rollers.—Novelty.....dis 30 %
Anti-Friction.....$1 75 per pair—dis 30 %
Hatchets.—Underhill Edge Tool Co.....dis 15 %
C. F. Dowse, warranted Cast Steel—
Shingling.....0, $4·75; 1, $5·25; 2, $5·75
Claw.....1, $5·75; 2, 6·25
Lathing.....1, $5·50
Axe Pattern.....1, $7·00; 2, 7·50
Broad.....0, $5·75; 1, $6·50; 2, $7·50; 3, $9·25; 4, $10·75; 5, $12·75; 6 $14·75.

Hinges.—Strap and T. Stanley Works.....dis 33⅓&10 %
Plate, Loose and Fast Joint..... ₩ ℔ 6c
Wrought Screw Hook..... ₩ ℔ 6½c
Knobs.—Young's Imp. Sliverd Glass.....dis 15 %
Lanterns.—Tubular No. 0.....$9·50
Guarded. No. 75, (with kerosene oil and candle burners)..... 6·25
Lead.—Sheet and Pipe.....9c—less 10 %
Locks.—Norwalk Lock Co.....dis 40&5 %
Mattocks.—
K. P. & Co., axe finish, long cutter.....$13 00—dis 10 %
Short cutter..... 12 75—dis 10 %
Meat Cutters.—"Miles's" Challenge.....dis. 20 %
No. 1, $22·00; 2, $30·00; 3, $40·00.
Metal.—Babbitt. No. 1, 35c; 2, 25c; 3, 16c; 4, 15c ₩ ℔
Nails.—10d and larger—dis 15c 100 keg lots.....$3 50
Nail Pullers.—Little Giant—Small.....per doz., $22·00
Little Giant—Large..... " $30·00
Padlocks.—Wilcox.....dis 40&5 %
All Brass, 2½ inch, 2 keys, job lot. $9 00
Paper.—Tar'd Sheathing..... ₩ ℔ 2 c
Dry Sheathing..... " 3½c
" " "Beaver Brand" Rosin Sized.. " 4½c
Tar'd " " " ..... " 3½c
Felt " " " ..... " 4½c
Picks.—
K. P. & Co. Axe Finish..₩ doz 5 to 6 $8·50; 6 to 7 $9·00
" " Solid Eyes.....5 to 6 6 to 7
$9 00 $9 50
Pins.—Universal Hat and Coat all wood—
2 in.....₩ gross $2 50; 3 in., 3 50; 4 in., 4 50—dis 15 %
Potato Digger.—
"Partridge," 6 square tine.....₩ doz $12 00
Shumway & Co., 6 round tine.....₩ doz 9 00
Pulleys.—Axle .....1¾ No. 15, 31c; 1¾ No. 18, 33c; 1¾ No. 28, 42c; 2 No. 29, 40c.
Nashua, Bronzed Face.....1¾, 80c; 2, 90c
Steel Axle " " ..... 2, $1·00
Pulley Blocks.—"Best Boston Make".....net
Common Strapped Blocks—
4 5 6 7 inch.
Single, 75c. 88c. $1·00 $1·13 each.
Double, $1·00 1·12 1·25 1·60 "
Inside Iron Strapped Blocks—
5 6 7 8 9 10 inch.
Single, $1·00 1·13 1·38 2·00 2·25 1·75 each.
Double, 1·88 2·30 2·62 3·63 4·00 5·00 "
Inside Iron Strapped Blocks, with Patent Roller Bushings— 5 6 7 8 9 10 inch.
Single, $1·25 1·50 1·65 3·50 2·65 3 50 each.
Double, 2·50 3·00 3·38 4·63 5·00 6·50 "
Plated Ware.—Rogers bros.....dis 50 %
Plumb & Levels.—"Davis" Pat. Adjustable—
No. 1, Iron and Wood Center Levels.....dis 50 %
No. 2, First Quality Levels.....dis 60&10 %
No. 3, Iron Pocket " .....dis 35 %
No. 4, Level and Plumb Glasses.....dis 60&10 %
No. 5, Iron Pocket Levels, per square and straight edge.....dis 50&10 %
No. 6, Improved Iron Bench Planes.....dis 20&10 %
Pocket Knives.—Conn. Cutlery Co..... new net list
American Shear Co.....dis 33⅓ %
Rail Barn Door.—For Novelty and Anti-Friction Hangers.....per foot 7c.. dis 30 %
Rivets.—Black.....dis 25 %
Carriage, oval head, Nos. 3, 4, 5, 6, 7, 8, 13 13 14 14 15 16c ₩ ℔ net
Rubber Moldings.—"Harmon's".....dis 10 %
No. 2, for Windows.....per foot, 5c
No. 3, for Doors.....per foot. 10c
No. 4, " .....per foot. 12c
Sad Irons.—Bless & Drake..... ₩ ℔ 3½
Sand Paper—0 to 2, $4·25: 2 to 3, $4·75.....dis 10 %
Saws.—*Hand and Panel—*
Wheeler, Madden & Clemson's, same list as "Disston's".....dis. 15 %
Disston's.....dis. 12½ %
Cross Cut—
Wheeler, Madden & Clemson X Cuts.....per ft., 37c
" " " "Star" X Cuts. " 60c
" " " Champion X Cut. " 50c
" " " One Man X Cut..each, $2·25
Boynton's genuine Lightning X Cut.....per ft., 60c
" " " One Man X Cut..each, $2·25
Circular—Wheeler, Madden & Clemson's.....dis. 25 %
Mill— " " " .....dis. 25 %
Screws.—American Screw Co.....revised list dis 62½ %
Aiken's.....dis 60&10 %
Scythe Stones.—
"Willoughby Lake," first quality.....₩ gross $6·50
second quality..... " $4·00
Shovels.—O. Ames.....dis 20 %
M. B. & D.....new list dis 12½ %
Snow, Malleable Iron Tip, D Handle—Agents for New England.....$6·50
Snow, Malleable Iron Tip, long Handle—Agents for New England..... 5·50
Sifters.—Coal, Rice, &c.....$12 00
Spading Forks.—M. & E.....dis 25 %
Stone Pickers.—"Partridge," original...₩ doz $15 00
Tools.—Aiken's Pattern, 20 in set; Parr's..$8·00 per doz
Traps.—Oneida.....dis 20 %
Blake's.....dis 50 %
Vises.—K. P. & Co.'s Solid Box. Blacksmith....₩ ℔ 18c
Parker's Parallel.....dis 10 %
Backus.....dis 25 %
"Howards." Parallel.....dis 20 %
Wardrobe Hooks.—Wire to drive.....₩ gross $1 00
Weather Strips.—"Harmon's"....per doz $5, d2 10 %
Weights.—Window Weights..... ₩ ℔ 2c
Wedges—Axe..... ₩ 1oz 38c
Wire.—
Eureka, in spools, No. 28 to 40 assorted...₩ gross $3 50
Wire Netting.—Clinton Wire Cloth Co., Green, Drab or Black..... ₩ ft 5½c
Wrenches.—Genuine Wrenches, G. A. Coes..dis 40&5 %
Walton.....dis 50 %
Wringers.—
Novelty and Universal } Tub No. 2 } Less than 2 doz, $72 00; 2 doz or more, 70 00
Bench A... less than 2 doz $86 00; 2 doz or more $84 00
" B... " " 94 00 " " 92 00
" C... " " 110 00 " " 107 00
Eureka..... per doz $58 00
Withington, Cooley & Co.—
Hoes, Rakes, Forks, &c.....dis 33⅓ %

Boston Metal Market.

(Corrected by Fuller, Dana & Fitz, 110 North Street, Boston, Importers and Commission Merchants.)

Iron.—Best Refined Bar Iron .....₩ ton $60 00 @ 62 50
"Burden Best" " " ..... " 100 00
Swedish Bar Iron.....gold " 110 00
Norway Shapes.....gold " 105 00
Norway Nail Rods.....gold " 120 00
Sheet Iron, American..... ₩ ℔ 4½c
" " Galvanized..... " 9 c
" " Russian.....gold " 14 c
Plate Iron, C. No. 1..... " 3½c
Iron Rails..... ₩ ton $32 00
Steel Rails..... " 77 50
Pig Iron, Foundry, No. 1 extra.... " 29 00
" " No. 2 extra .... " 27 00
" Gray Forge..... " 25 00
" Scotch..... " 30 00 @ 32 00
Wrought Scrap Iron..... " 31 00
Old Rails ..... " 26 00

Steel.—	₩ ℔	German	₩ ℔ 9½c
Eng. Tool, gold	15½c	Spring.....	8 c
American Tool	14 c	Tire.....	6¼c
Mach	9½c	Sleigh Shoe.....	5 c
Pessemer.....	7 c	Toe Calk	7½c
Tin Plates.—₩ box	gold	**Copper.**—	₩ ℔
I. C. Char. 10x14 @ $8·75		Ingot.....	23½c
I. C. Coke 10x14.7 50@8 00		Bolt.....	30c
Char. Roof. IC. 14x20. 8 00		Sheathing.....	30c
Coke " IC. 14x20, 7 00		**Lead.**—	₩ ℔
METALS.		Pig.....	7½c
Pig Tin.—	₩ ℔., gold	Sheet & Pipe. ...	8 35
Banca.....	21c	**Zinc.**—Sheet..	₩ ℔
Straits.....	19c	**Spelter.**.....	₩ ℔ 7½c
English.....	19c	**Antimony.**	gold ₩ ℔ 12½c

ST. LOUIS.

Corrected weekly by Semple, Birge & Co.

Apple Parers.—Conqueror.....₩ doz, $7 75
Hudson's Rotary..... " 7 75
Axes.—Wm. Mann's, Red Warrior.....₩ doz $11 50
Wm. Mann's, W. Stewart's..... " 11 00
" C Marshall..... " 10 50
" Handled..... " $5 extra
" Double Bitted..... " 2 50
H. L. B. & Co.'s, L. & C..... " 11 50
" Pioneer..... " 12 00
" James & Co..... " 11 00
Hunt's..... " 12 00
Axles.—"Jones, Henry & Co.'s" Patent Lubricating, Half Patent, Swelled Taper, Plain Taper and Concord Axles.....dis 10 & 5 %
Common Axles (Pat. Lubricating), 1¼ inch and upward..... ₩ ℔. 6½c.
do. less than 1¼ inch..... " 7 c.
Bellows.—Best St. Louis make..61c ₩ in. dis 20&2½ %
Bells.—Troy, Church, School and Farm Bells..₩ ℔ 44c
"Improved Amalgam Bronzed," 15 in $3·00; 17 in., $4·00; 19 in., $6·00..... dis 10 %
Belting.—"Boston Belting Co.'s Rubber..dis 3&7½ %
"Bradford & Sharp's" Oak-Tanned Leather.... dis 30 %
Bolts.—Arms, Bell & Co.'s Carriage & Tire..dis 70&10 %
Arms, Bell & Co.'s Machine.....dis 30&10 %
Butts.—Western Butt Co.'s new list—
Narrow Fast Joint.....dis 2&10 %
Broad Fast Joint.....dis 3 & 10 %
" Loose " .....dis 45&10 %
Reversible.....dis 40&10 %
" Japanned and Silver Tipped.....dis 45&10 %
Loose Joint "Acorn" " " .....dis 45&10 %
Wheeling Hinge Co.'s W't Fast Joint Nar.....dis 30 %
" " " Broad.....dis 25 %
" " Loose Joint.....dis 35 %
" " Reversible.....dis 25 %
" " Table & B'k Flaps..... 30 %
Churns.—Julian, No. 2, $7·00; No. 3, $7·50; No. 4, $8·50..... dis 20 %
Cider Mills.
American Senior, $40·00; Am. Junior, $25·00....dis 15 %
Corn Knives.—Dunn Edge Tool Co.'s Clip.. 5 75
Seymour Mfg. Co.'s Solid Steel Back..... 5 00
Corn Shellers.—Sandwich Mfg. Co.'s—
Power Shellers.....dis 10 %
Hand Shellers..... Special rates
Corn Planters—Challenge, Horse.....$49.00 net
St. Louis, Hand..... per doz $15·00
Cotton Gins.—The Carver, 10 in. Saw, $4 a Saw..dis 15 %
12 in. Saw, $4·50 a Saw.....dis 10 %
Crow Bars.—Steel Pointed..... ₩ ℔ 6½c
Drag Saw Machines.—
Culver's Iron Drag Saw.....dis 10 %
Robinson's Patent Sweepstakes Drag Saw....dis 10 %
Fanning Mills.—Nash & Cutt's.....dis 15 %
Feed Cutters.—Improved Burdick National...dis 15 %
Sanford No. 1, $12 00 No. 2, $8 50.....net
Files.—Black Diamond, Mill.....$5·00 £ currency.
" Bastard..... 5·00 £ currency.
" Taper..... 5·00 £ currency.
Forges.—Keystone Portable Forge Co.'s.....dis 12½ %
Forks and Hoes.—
Auburn Mfg. Co.'s Hay and Manure Forks....dis 33⅓ %
" Handled Hoes.....dis 33⅓ %

Garden Seed Drills and Wheel Hoes.
Allen's Double Wheel Hoe..... dis 15 %
" " Planet Drill, Nos. 2 and 3..... dis 15 %
" " Combined Drill and Wheel Hoe..... dis 15 %
Grinding Mills.—French Burr Mills..... net list
Challenge Feed Mills.....dis 20 %
Sedgebeer's Nonpareil Mills.....dis 10 %
Osage Corn and Cob Mill.....dis 20 %
Hammers.—Masons' Hammers..... ₩ ℔ 20c
Smiths' Hand..... 20c
Handles.—No. 1 Fork, Hoe and Rake.....dis 20 %
No. 2 Fork, Hoe and Rake.....dis 40 %
Harrow Teeth.—1 inch iron..... ₩ ℔ 4½c
⅞ and ¾ inch iron..... " 5½c
Barbed or Headed.....½c extra
Hay and Cotton Presses.—
Dederick's Railroad.....dis 5 %
" Perpetual.....net
Hay Knives.—
Dunn Edge Tool Co.'s..... ₩ doz $15 00—dis 15&5 %
Lightning (Weymouth's Patent)..... ₩ doz $20 00
Hinges —
Wheeling Hinge Co.'s Strap & T..... dis 33⅓&10 %
Horse Hay Fork.—Nellis' Harpoon..... dis 25 %
Horse Nails.—National Patent Pointed..... 20c rates
National Patent Pointed, extra finished..... 40c "
Horse Powers.—Pitts or Carey's Patent.....dis 10 %
Wheeler's Railway.....dis 10 %
Sandwich Lever.....dis 10 %
Horse Rasps.—Heller Bros.....dis 45 %
"Black Diamond".....$6·00 to the £ currency
Horse Shoes.—
Rhode Island (Perkin's Pattern)..... ₩ keg, $5 50
" Mule..... " 6 50
" Trotting Shoes ..... " 8 00
Tredegar Horse..... per keg $5 50
" Mule..... per keg 6·00
Hose.—
Boston Belting Co.'s Rubber Medium Sizes..dis 30&10 %
" " " Small Sizes, Hydraulic.....dis 40 %
Ice Tools.—W. T. Wood & Co.'s Saws ....new list net
W. T. Wood & Co.'s Chest Hatchets.....new list net
" " Axes.....new list net
" " Loading Tongs.....new list net
" " Medium, Small and Family Tongs.....new list net
" " Chisels, Hooks and Grapples.....new list net
Lawn Mowers.—Archimedean.....dis 20&5 %
Charter Oak.....dis 20 %
Mattocks and Grub Hoes.—
Klein, Logan & Co.'s Mattocks...₩ doz $13 00 @ 18 5
" " Grub Hoes, oval eye ..... " 10 00 @ 11 50
Money Drawers.—
Pierpont & Co.'s Excelsior.....per doz $40·00 net
Nails.—Wheeling.....$3 25 rates
Packing.—Boston Belting Co.'s Rubber, Plain..dis 30 %
Boston Belting Co.'s Rubber, Pure.....dis 25&5 %
" " No. 2 Plain.....dis 40 %
" " Round and Square....dis 10&10 %
Picks.—Klein, Logan & Co.'s Railroad and Clay..... ₩ doz $9 30 @ 11 00
Klein, Logan & Co.'s Coal..... " 7 45 @ 8 40
" " Pony..... " 12 60 @ 13 50
" " Stone..... " 14 40 @ 14 90
" " Tamping..... " 14 70 @ 15 30
" " Miners' Drifting..... " 10 25 @ 12 80
Plows.—Avery's Cast and Steel.....dis 15 %
Collins Cast Cast Steel.....new list net
Pekin Steel.....new list net
Post Hole Augers.—Clark's Patent—
No. 1, ₩ doz. $27; No. 2, $26; No. 3, $32.....dis 20 %
Pulleys.—5 inch.....per doz $4·25 net
4 inch.....per doz 3·25 net
Nellis' Patent.....new list dis 15 %
Pumps.
St. Louis, Farm, Patent Metal Lined...new list dis 50 %
Rakes.—Paddock's Premium Sulky.....$30 00 net
St. Louis Revolving 14 tooth..... 5 50 net
" 16 " ..... 6 00 net
" Hand Hay Rake.....dis 10 %
Reaper Knives and Sections.—
Geo. Barnes & Co.'s Knives.....dis 40 %
" " Sections.....dis 40 %
Road Scrapers.—Steel.....dis 45 %
Cast Iron.....dis 10&2½ %
Sad Irons.—Monitor Brand, Silver Polished.. ₩ ℔ 4c
Sash Weights.—Standard Solid Eyes..... ₩ ℔ 3½ c
Saws.—Curtis & Co.....dis 10 %
Scythes.—Dunn Edge Tool Co.'s....new list dis 40&3 %
Scythe Stones.—No. 1 Ind'n Pond ₩ gr's, $7·00)
Extra Indian Pond..... " 7 50
Premium..... " 10 50 } dis 25 %
Diamond Grit..... " 13 00
Shovels and Spades.—Myers & Armor.....dis 15 %
O. Ames & Son.....dis 12½ %
Grain Scoops, Pat. Corrugated Straps M. & A. dis 12½ %
" " T. Rowland's dis 15 %
" " O. Ames & Son dis 5 %
Sledges.—Smith's Stone or Coal Sledges—
Steel Face Polished..... ₩ ℔ 15c
Solid Cast Steel..... " 35c
Spaths and Cradles.—Seymour Mfg. Co.'s ..dis 20 %
Sorghum Machinery.—Bell Cane Mills.....dis 15 %
Scantlin's Seamless Evaporators.....dis 10 %
Springs.—Cleveland Spring Co.'s—
Carriage and Express.....dis 12½ %
Blue Seat Springs.....dis 15 %
Vises.—Solid Box..... ₩ ℔ 16c
Wilson Mfg. Co.'s.....dis 15 %
Wheelbarrows.—Railroad & Garden....new list net
Wrenches.—Coes' Genuine.....dis 33⅓ %
Coes' Pattern.....dis 50 %
Wagons.—Whitewater Farm Wagons—
Thimble Skein.....No. 3, 3·6; 3¼, $80 3½, $81
Iron Axle..... No. 1½, $80; 1⅝, $83 1¾, $90

St. Louis Metal Market.

(Corrected Weekly by Messrs. R. Sellew & Co.)

Tin Plate.

IC, 10x14, Char.....	10 00	IX, continuous, 20 in. x 200 ft.....	
IX, 10x14, "	12 50	IC, 10x14, best Coke.....	$ 9·00
IC, 12x12, "	10 50	IC, 10x14, good Coke.....	9 00
IX, 12x12, "	13 00	IC, 10x20.....	14 50
IC, 14x20, "	11 00	IC, 14x20.....	9 50
IX, 14x20, "	13 50		
IX, 14x20, Terne.....	9 50		
IX, 14x20, "	12 00		
IC, 20x28, "	20 00	IC, 14x20, Coke Lead.	
IX 20x28, "	24 00	IC, 10x14, punch'd for Safes.....	9 50
IC, continuous 20 in. x 200 ft.....			

Block Tin.

Large Pigs.....	25c	Bars.....	27c
Small " L. & F.....	26c		

Sheet Zinc.

Casks ..... ₩ ℔ 10½c | Sheet..... ₩ ℔ 11c

Solder.

No. 1, Refined, in bars or plate..... 16c
No. 2, " " " 14c
Pig Lead..... 7½c
Sheet Copper.—18 to 100 lbs. Sheets 30x70..... 31c
14 to 16 lbs., Sheets 30x60..... 31c
10 to 12 lbs., " " and 20x72..... 33c
6 to 9 lbs., " " 35c
Tinned, 14 and 16 oz. 14x48..... 32c
Planished, 14 and 16 oz. 14x48..... 39c
" No. 7, 8 and 9..... 41c
Copper Bottoms..... 34c
Sheet Iron.

	Common.	Smooth. Com.	Smooth Charcoal.	Smooth Juniata.
No. 24.....	4¼c	5¼c	5¾c	8¾c
25 & 26...	4½c	5¾c	7 c	9 c
27.....	4¾c	6 c	7¼c	9¼c

Galvanized Iron.....dis 30 %

No. 16 to 20.....	12c	No. 22.....	13c
21 to 24.....	13c	26.....	16c
25 & 26.....	14c		

Russia Iron.—Perfect.....18c | No. 1 Stained..... In sheets, 1c higher.
American Russia.—A..... 11c | B..... In sheets, 1c higher.

Lead.—		Lead Pipe, in full coils	8¼c
Pig.....	7¼c	Lead Pipe, when cut..	8¾c
Bar.....	8¾c	Sheet Lead.....	8¾c

Wire—Bright.....dis 35 %
Coppered.....dis 30 %

CHICAGO.

(Reported by Frank Sturges & Co., 72, 74 & 76 Lake St.)

Tin Plate.—

10x14, IC, Ch'l. Good..$		14x20, IX, Ch'l Best..$	14 00
10x14, IC, " Best.	10 50	14x20, IXX, " "	16 50
10x14 IX, " "	13 00	14x20, IXXX, " "	19 00
12x12, IC, " "	11 00	DC, 100 Plate, " "	19 50
12x12, IX, " "	13 50	DX, " "	13 00
14x20, IC, " "	11 50	DXX, " "	15 50
		DXXX " "	18 00
		14x14, IX, " "	23 50

Roofing IC, Charcoal, Best..... 10 00
Roofing IX, Charcoal " 12 50
20x28, IC, Charcoal Roofing, Com 19 00
20x28, IC, " Good..... 19 50
20x28, IC, " Best..... 24 00
20x28, IX, " 24 50
10x14, IC, Coke Plates..... 9 50 @ 10 00
14x20, IC, " ..... 10 00 @ 10 50
10x20, IC, " 15 00

Block Tin.—

Large Pigs	28c	Bars.....	27c
Small.....	26c	Straits, 2c. higher.	

Zinc.—Sheet, 500 to 1000 lb. Casks.....10½c
Loose Sheets..... 11c
Slab Zinc or Spelter..... 7½ to 8
Copper.—Bottoms..... 34c
Sheathing..... 30 c
Planished..... 39c
" Boiler lengths..... 41c
Ingot..... 24c to 25c
Bolt..... 33c
Braziers' Sheets.—
30x60, 6 to 8 lbs..₩ ℔ 28c | 30x60, 15 to 100 lbs..₩ ℔ 31c
30x60, 10 & 12 lbs.. " 33c |
Solder.—F. S. & Co.'s make.
Best Fine..... 20c
No. 1..... 18c
Roofing..... 17c
Braziers' or Spelter Solder..... 32c to 35c
Antimony..... 17c
Babbit Metal—F. S. & Co.'s..... 16c
No. 2..... 14c
Sheet Iron.—

	Common.	Smooth. Com.	Smooth Charcoal.	Smooth Juniata.
No. 24.....	4¼c	5¼c	5¾c	8¾c
25 & 26...	4½c	5¾c	7 c	9 c
27.....	4¾c	6 c	7¼c	9¼c

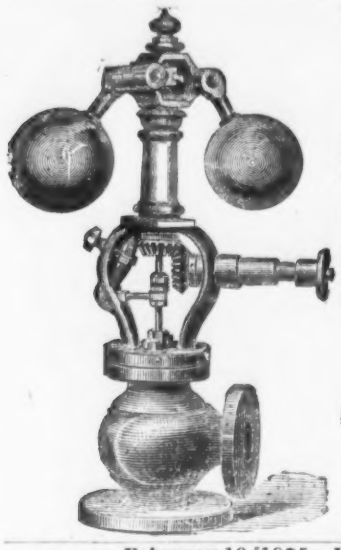
Galvanized Iron.....dis 30 %

No. 16 to 20.....	12c	No. 22.....	13c
21 to 24.....	13c	26.....	16c
25 & 26.....	14c		

Russia Iron.—
Perfect.....18c | No. 1 Stained..... In sheets, 1c higher.
American Russia.—A..... 11c | B..... In sheets, 1c higher.

Lead.—		Lead Pipe, in full coils	8¼c
Pig.....	7¼c	Lead Pipe, when cut..	8¾c
Bar.....	8¾c	Sheet Lead.....	8¾c

Wire—Bright.....dis 35 %
Coppered.....dis 30 %



TO ALL WHO USE STEAM-POWER!

We will put our Governor on any Engine, and guarantee it to prove itself superior to all others.

If, after a fair trial, it does not, we will take it off at our own expense.

Shive Governor Co

BETHLEHEM, PA.

ALSO,

SHIVE'S PATENT WATCHMAN'S CLOCK AND DETECTOR.

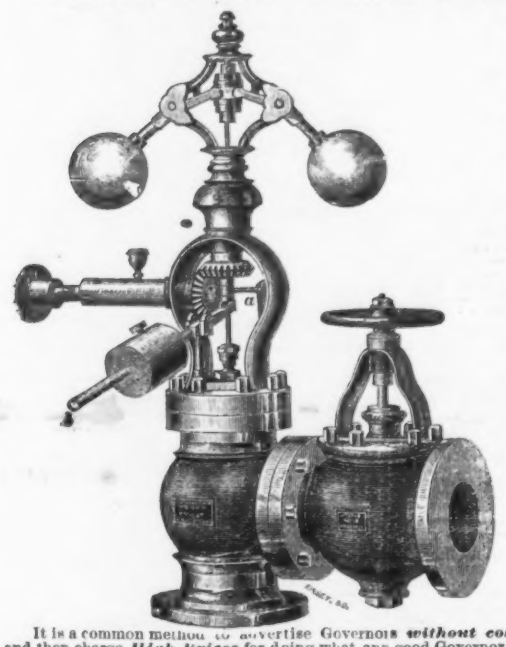
The Best and Cheapest Watcher of the Watchman made

PRICE ONLY $15.

Circulars sent free

February 10, 1875. REDUCED PRICE LIST OF THE

JUDSON PATENT IMPROVED GOVERNORS.



When Governors are ordered, be particular and say Governor with Stop Valve, or without Stop Valve; and either Black, Finished or Portable, as you may require, and with or without Lever Attachment.

For dimensions and other particulars send for Illustrated List.

Capacity of Valve or Diameter of Steam Pipe in inches.	Price, Black.	Price, Bright Finish.	Price, Portable.	Price of Lever Attachment for altering speed.	Price of Stop Valve.
¾	18·00	20·00	17·00	..	..
1	20·00	22·00	19·00	..	..
1	24·00	27·00	22·00	2·00	5·25
1¼	29·00	32·00	27·00	2·25	6·50
1½	34·00	38·00	31·00	2·50	8·50
2	41·00	46·00	38·00	2·75	11·50
2¼	47·00	54·00	..	3·25	16·00
2½	50·00	57·00	47·00	3·50	17·00
2¾	55·00	62·00		3·75	19·00
3	62·00	70·00		4·25	22·00
3½	71·00	80·00	No Larger Portable made than 2½ in.	4·50	27·00
4	81·00	92·00		5·00	32·00
4½	91·00	103·00		5·50	37·00
5	102·00	114·00		6·00	42·00
5½	116·00	129·00		6·50	48·00
6	134·00	148·00		7·00	55·00
7	160·00	176·00		8·00	69·00
8	199·00	219·00		9·00	83·00
9	230·00	255·00		10·00	..

No Charge for Boxing & Cartage.

It is a common method to advertise Governors *without cost*, unless satisfactory to the customer, and then charge *High Prices* for doing what any good Governor will do. Various Governors inferior to the "Judson" are sold in this way, operating well enough for three months, to insure collection of the pay, but becoming useless after a year's wear—their construction lacking durability. The Judson Governor is guaranteed to be not only the best Regulator of Steam Engines, but also the most durable Governor made. Parties in buying other Governors should stipulate that their durability be guaranteed, and should also take care that they do not, for much inferior Governors, pay higher prices than those shown in the above list. We guarantee the Judson Governor will do all any other Governor can do, and in Accuracy and Durability—the main essentials—we guarantee it shall do more.

JUNIUS JUDSON & SON, Rochester, N. Y.

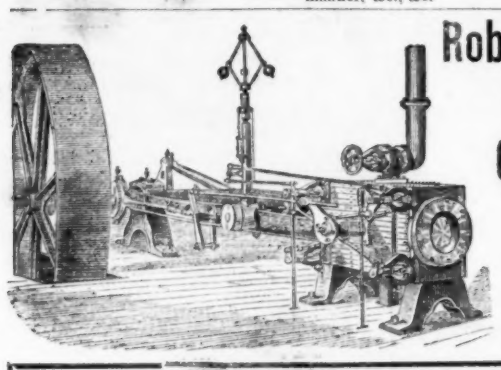
The Pratt & Whitney Co.,

Hartford, Conn.,

Have constantly on hand and making

Drop Hammers

Of recently Improved Construction. Pony Trip Hammers, Blacksmiths' Sheaves, Broaching and Stamping Presses, Iron Shop Cranes, Machinists' Tools, Gun and Sewing Machine Machinery. Make to order Gray and Charcoal Iron Castings of all styles and sizes not exceeding 15 tons weight, (making patterns if desired). Furnish Clamp Pulleys of light patterns, cut gears in a superior manner, &c., &c.



Robt. Wetherill & Co

CHESTER, PA.

Corliss Engine BUILDERS

AND

Boiler Makers.

THORNE, DeHAVEN & CO.

21st Street, above Market,
PHILADELPHIA.

DRILLING MACHINES.

PORTABLE DRILLS. Driven by power in any direction, self-feed and convenient adjustment.

RADIAL DRILLS. Self-feed—large adjustable box table—separate base plate, every convenience.

VERTICAL DRILLS. Self-feeding—of new and improved designs.

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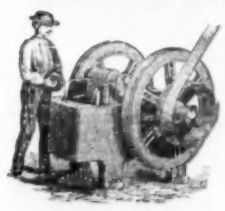

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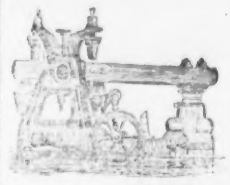

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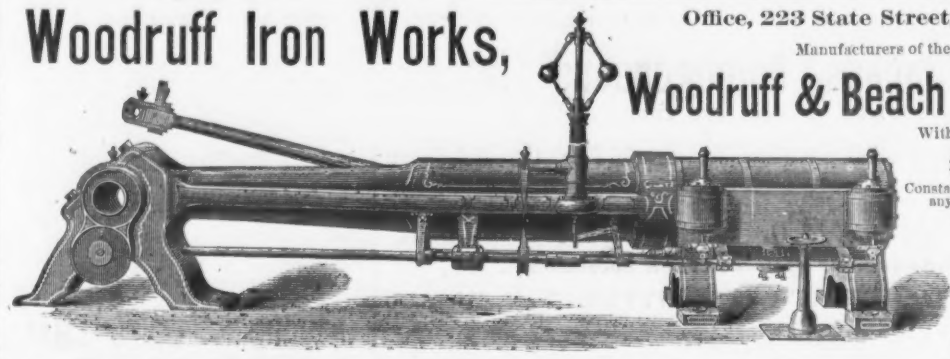

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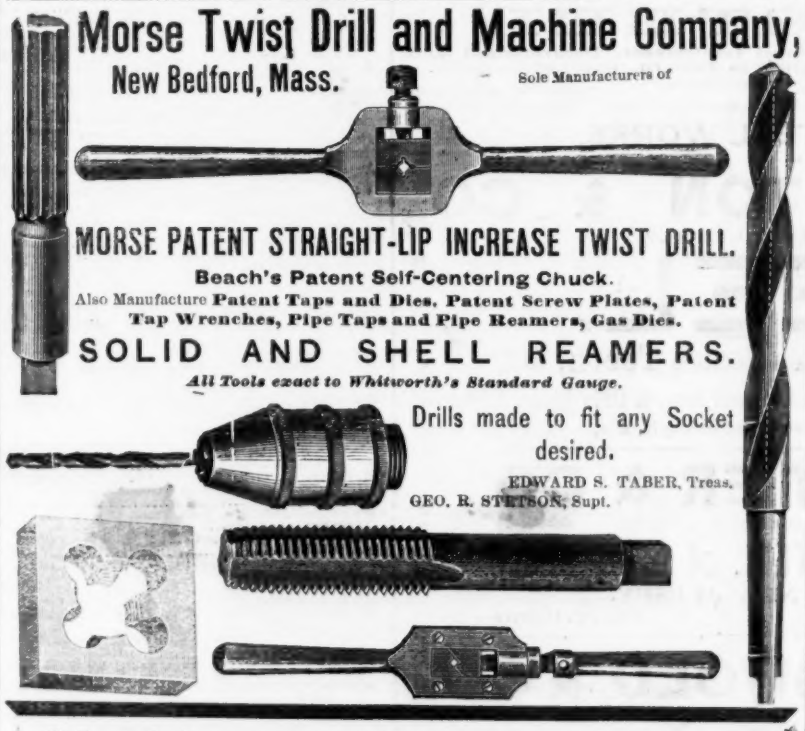

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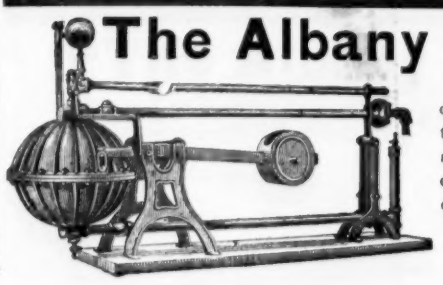

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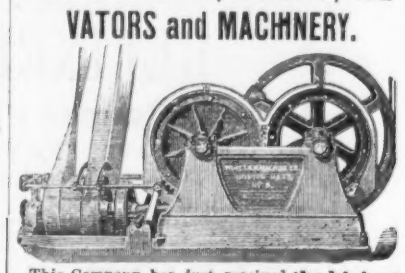

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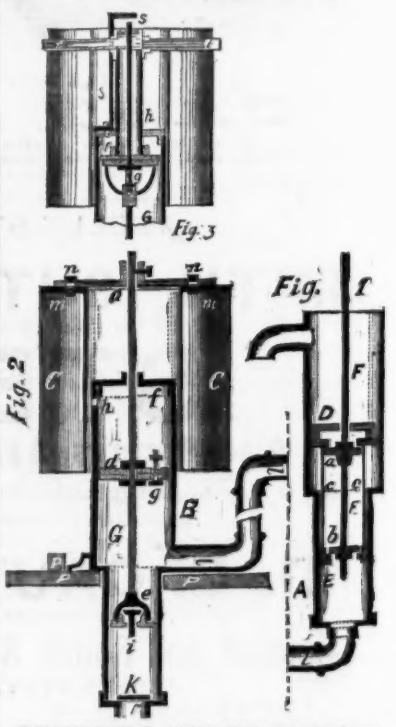

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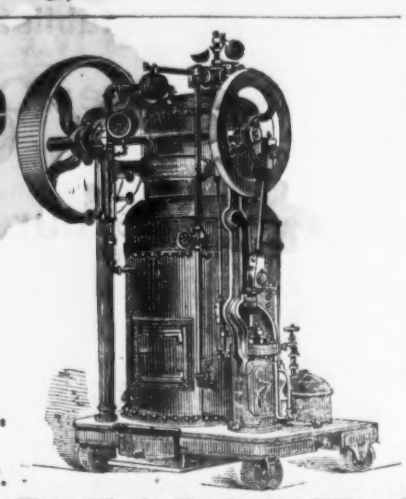

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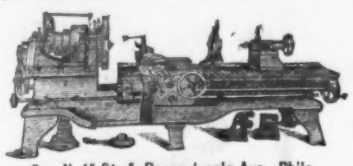

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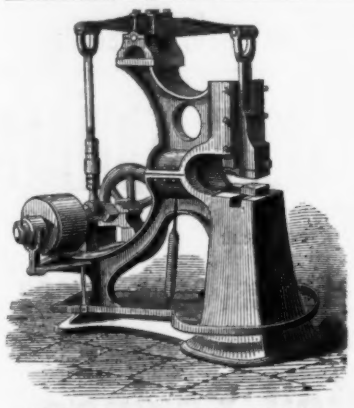

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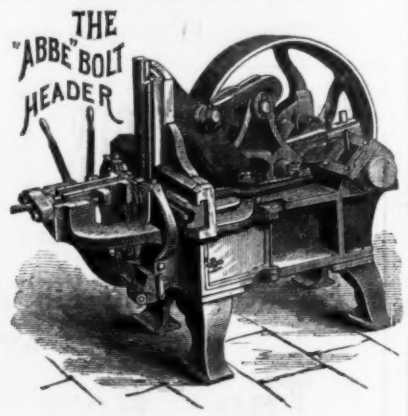

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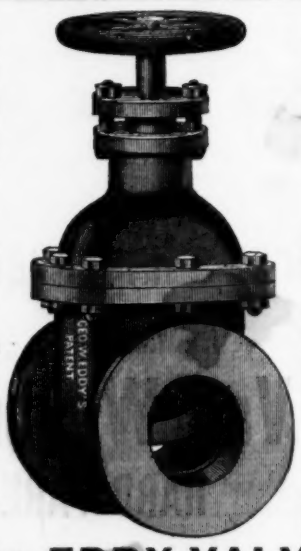

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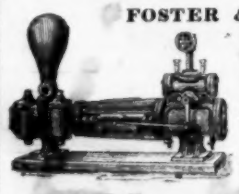

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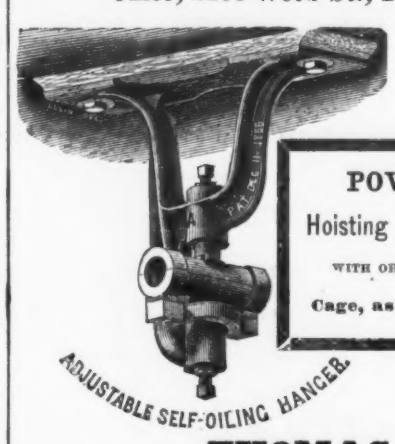

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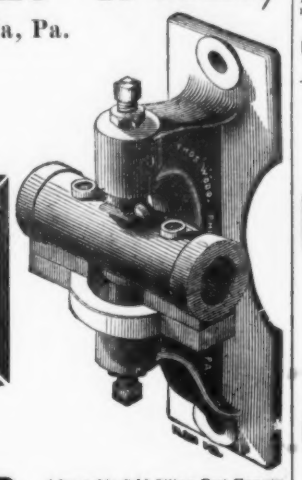

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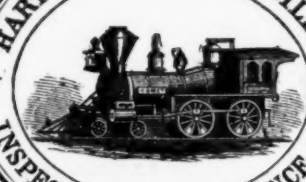

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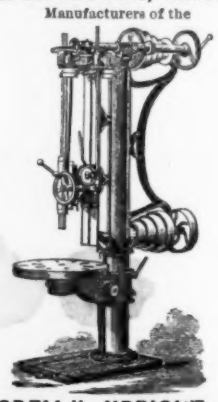

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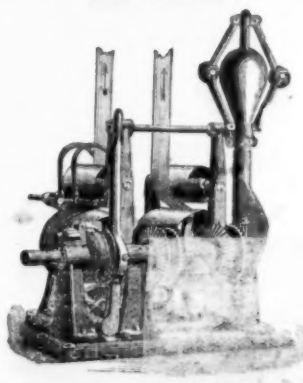

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